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I

WHAT KNOWLEDGE IS OF MOST WORTH?[1]

The student of history is struck with the complexity of modern thought. From the dawn of philosophy to the great Revival of Learning the lines of development are comparatively simple and direct. During that period one may trace, step by step, the evolution of the main problems of thought and action, and discover readily how the theories of the seers stood the test of application by the men of deeds. At Athens during the great fifth century the inner life was the chief part of life itself. In that age of the world life was simple; and often, because of its refinement and independence, more reflective than with us. Men's ideals were more sharply defined and more easily realizable. They did not doubt that the world existed for them and their enjoyment. Even that advanced stage of human culture of which Dante is the immortal exponent, believed, as Mr. John Fiske says,[2] that "this earth, the fair home of man, was placed in the center of a universe wherein all things were ordained for his sole behoof: the sun to give him light and warmth, the stars in their courses to preside over his strangely checkered destinies, the winds to blow, the floods to rise, or the fiend of pestilence to stalk abroad over the land—all for the blessing, or the warning, or the chiding, of the chief among God's creatures, Man." With such a conception as this, theory

[1] Presidential address, delivered before the National Educational Association, at Denver, Colo., July 9, 1895.

[2] *The destiny of man* (Boston, 1893), p. 12.

and practice could be closely related. In the ancient world it was not unusual to find the thought of the disciple guided implicitly by the maxim of the master. *Γνῶθι σεαυτόν* and *Nil admirari* were preached by the early philosophers in the confident belief that they could be practiced by him who would.

In these modern days all this is changed. Man has come to doubt not only his supremacy in the universe, but even his importance. He finds that, far from dwelling at the center of things, he is but "the denizen of an obscure and tiny speck of cosmical matter quite invisible amid the innumerable throng of flaming suns that make up our galaxy." A host of new knowledges has appealed to human sympathy and interest, and has taxed them to the utmost. Galileo with his telescope has revealed to us the infinitely great, and the compound microscope of Jansen has created, as out of nothing, the world of the infinitely small. Within a generation or two biology has been created, and physics, chemistry, and geology have been born again. The first wave of astonishment and delight at these great revelations has been succeeded by one of perplexity and doubt in the presence of the wholly new problems that they raise. The old self-assurance is lost. Men first stumble, blinded by the new and unaccustomed light, and then despair. The age of the faith and assured conviction of Aquinas was followed by the bold and cynical skepticism of Montaigne; and this in turn—for skepticism has never afforded a resting-place for the human spirit for more than a moment—has yielded to the philosophy of disenchantment and despair of a Schopenhauer and the morbidly acute and unsatisfying self-analysis of an Amiel. Already it is proclaimed by Nordau and his school that we are in an age of decadence, and that many of our contemporary interpreters of life and thought—Wagner, Tolstoi, Ibsen, Zola, the pre-Raphaelites—are fit subjects for an insane asylum. Mankind is divided into warring camps, and while electricity and steam have bound the nations of the earth together, questions of knowledge and of belief have split up every nation into sects. From all this

tumult it is difficult to catch the sound of the dominant note. Each suggested interpretation seems to lead us further into the tangled maze, where we cannot see the wood for the trees. Standards of truth are more definite than ever before, but standards of worth are strangely confused, and at times even their existence is denied.

Amid all this confusion, however, a light has been growing steadily brighter for those who have eyes to see. In our own century two great masters of thought have come forward, offering, like Ariadne of old, to place in our hands the guiding thread that shall lead us through the labyrinth—the German Hegel and the Englishman Herbert Spencer. And as the century closes, amid the din of other and lesser voices, we seem to hear the deeper tones of these two interpreters swelling forth as representative of the best and most earnest endeavors, from two totally different points of view, of our human seekers after light. Each has taken the whole of knowledge for his province, each has spread out before us a connected view of man and his environment, and each would

> ". . . assert Eternal Providence
> And justify the ways of God to men."

These great teachers typify the catholicity and the scientific method that are so characteristic of the best expressions of our modern civilization. Whatever of insight we have gained into history, into philosophy, into art, and into nature, they have incorporated in their systematic thinking and have endeavored to illumine with the light of their controlling principles. Hegel, schooled in the teachings of Kant and Fichte, and coming early to an appreciation of the seed-thought of Plato and Aristotle, Bruno and Spinoza, has taught us in unmistakable language that independent, self-active being is the father of all things. Spencer, feeling the thrill of that unity which makes the cosmos one, and receiving from Lamarck and von Baer the hint that led him to see that the life of the individual furnishes the clew to the understanding of the life of the aggregate, whether natural or social, has formulated into a

single and irrefutable law of progress the terms of that development, or evolution, which has been more or less dimly before the mind of man since thought began. The German with his principle of self-activity, and the Englishman with his law of evolution, offer us a foothold for our knowledge and our faith, and assure us that it will safely support them. From the one we learn the eternal reasonableness of all that is or can be, while the other teaches us the character of the process by which the visible universe, that every day presents new wonders to our gaze, has been builded out of the primeval star-dust. At their hands the two sublime and awe-inspiring verities of Kant—the starry heavens above and the moral law within—find their places in the life of the Spirit, and together testify to its eternity and its beauty.

Despite the fact that our age is one of unexampled scientific and industrial progress, yet nothing in all our modern scientific activity is more striking than the undisputed primacy of Thought—Thought not in antagonism to Sense, but interpretative of the data of Sense. Idealism, shorn of its crudities and its extravagances, and based on Reason rather than on Berkeley's analysis of sense-perception, is conquering the world. What Plato saw, Descartes, Leibniz, Kant, and Hegel have demonstrated. The once-dreaded Materialism has lost all its terrors. Science itself has analyzed matter into an aggregate of dynamical systems, and speaks of Energy in terms of Will. The seemingly inert stone that we grasp in our hand is in reality an aggregate of an infinite number of rapidly-moving centers of Energy. Our own Will is the only Energy of whose direct action we are immediately conscious, and we use our experience of it to explain other manifestations of Energy to ourselves. Modern mathematics, that most astounding of intellectual creations, has projected the mind's eye through infinite time and the mind's hand into boundless space. The very instants of the beginnings of the sun's eclipses are predicted for centuries and æons to come. Sirius, so distant that the light from its surface, traveling at a rate of speed that vies with the lightning, requires more than

eight and one-half years to reach us, is weighed and its constituents are counted almost as accurately as are the bones of our bodies. Yet in 1842 Comte declared that it was forever impossible to hope to determine the chemical composition or the mineralogical structure of the stars. An unexpected aberration in the motions of Uranus foretold the existence of an undiscovered planet at a given spot in the sky, and the telescope of Galle, turned to that precise point, revealed to the astonished senses what was certain to Thought. A discrepancy in the weight of nitrogen extracted from the air we breathe, but yesterday led Lord Rayleigh, by an inexorable logic, to the discovery of a new atmospheric constituent, argon. The analytical geometry of Descartes and the calculus of Newton and Leibniz have expanded into the marvelous mathematical method—more daring in its speculations than anything that the history of philosophy records—of Lobachevsky and Riemann, Gauss and Sylvester. Indeed, mathematics, the indispensable tool of the sciences, defying the senses to follow its splendid flights, is demonstrating to-day, as it has never been demonstrated before, the supremacy of the Pure Reason. The great Cayley—who has been given the proud title of the Darwin of the English school of mathematicians—said a few years ago:[3]

"I would myself say that the purely imaginary objects are the only realities, the *ὄντως ὄντα*, in regard to which the corresponding physical objects are as the shadows in the cave; and it is only by means of them that we are able to deny the existence of a corresponding physical object; and if there is no conception of straightness, then it is meaningless to deny the conception of a perfectly straight line." The physicist, also, is coming to see that his principle of the conservation of energy in its various manifestations, is a new and startling proof of the fundamental philosophical principle of self-activity. Energy manifests itself as motion, heat, light, electricity, chemical action, sound. Each form of its manifes-

[3] *Presidential address, British Association for the Advancement of Science*, Southport, 1883.

tation is transmutable into others. The self-active cycle is complete.

But it is not from the domain of natural science alone that illustrations of the all-conquering power of Thought can be drawn. The genius of Champollion has called to life the thoughts and deeds of Amenotep and Rameses, and what appeared to Sense as rude decorative sketches on the walls of temple and of tomb are seen by the Understanding to be the recorded history of a great civilization in the valley of the Nile. The inscrutable Sphinx, that watchdog of the Pyramids, "unchangeable in the midst of change," which sat facing the coming dawn for centuries before the storied siege of Troy, now looks down on modern men who write the very words of its builders in the language of Shakspere and of Milton. The cries of savage man, the language-symbols of the early Aryans, and the multiform and complicated tongues of modern Europe, all so seemingly diverse to the ear and to the eye, have been the foundation for the sure laws of comparative philology that the labors and insight of Bopp and Grimm and Verner have built upon them. All these, and the many triumphs like them, are victories of insight; each marks a new stage in the conquering progress of the Reason, by which it finds itself in every part and phase of the cosmos and its life.

I regard this insight as to self-activity and the primacy of reflective Thought as the profoundest that philosophy has to offer; and, instead of being urged, as in centuries past, in antagonism to the teachings of science, it is now becoming the joint conclusion of philosophy and science together. It pulsates, too, in the world's grandest poetry and most exquisite art. It is the very soul of the verse of Homer and of Dante, of Shakspere and of Goethe. It makes the marble of Pheidias glow with life, and it guides the hand of Raphael and Michael Angelo as they trace their wondrous figures with the brush. It gives immortality to the most beautiful of temples, the Parthenon, that

> ". . . friend to man, to whom thou sayest,
> 'Beauty is truth, truth beauty,—that is all
> Ye know on earth, and all ye need to know.'"

It is also the inspiration of that superb mediæval architecture, that bears the name of the conquerors of Rome, which has given to Northern Europe its grandest monuments to the religious aspiration and devotion of the Middle Ages.

What, then, does this insight signify, and what is its bearing upon our educational ideals? Obviously the possession of an insight such as this, wrested from nature by the hand of science and from history by that of philosophy, must serve in many ways to guide us in estimating the importance of human institutions and educational instruments. We cannot accept either of these, without question, from the hands of a tradition to which our modern philosophy and our modern science were wholly unknown; nor can we blindly follow those believers in a crude psychology who would present us with so many mental faculties to be trained, each by its appropriate formal exercise, as if they were sticks of wood to be shaped and reduced to symmetry and order. Mental life, as Wundt so forcibly says, "does not consist in the connection of unalterable objects and varying conditions: in all its phases it is process; an active, not a passive, existence; development, not stagnation."[4] Herein is the mental life true to nature. Like nature, it is not fixed, but ever changing. This unceasing change, necessary to both growth and development, gives to life its reality and its pathos. It gives also to education its unending character, and the clew to its wisest processes.

The question that I am asking—what knowledge is of most worth?—is a very old one, and the answers to it that have been handed down through the centuries are many and various. It is a question that each age must put to itself, and answer from the standpoint of its deepest and widest knowledge. The wisest philosophers have always seen, more or less clearly, the far-reaching character of the question and the great importance of the answer. Socrates and Plato, Augustine and Aquinas, were under no illusions as to it; but often in later years the deeper questions relating to educa-

[4] *Lectures on human and animal psychology* (New York, 1894), p. 454.

tional values have been either lost sight of entirely or very superficially dealt with. Bacon clothes in attractive axiomatic form some very crude judgments as to the relative worth of studies. Rousseau risks his reputation for sobriety of judgment in outlining an educational programme. Herbert Spencer turns aside for a moment from his life-work to apotheosize science in education, although science is, by his own definition, only partially-unified knowledge. Whewell exalts mathematics in language only less extravagant than that in which Sir William Hamilton decries it. In similar fashion, others, holding a brief for some particular phase or department of knowledge, have come forward crying Eureka! and proclaiming that the value of all studies must be measured in terms of their newly-discovered standard. The very latest cry is that studies and intellectual exercises are valuable in proportion as they stimulate enlarged brain-areas; thus making the appreciation of Shakspere, of Beethoven, and of Leonardo da Vinci solely a function of the circulation of the blood.

But to sciolists of this type philosophy and science can now make common answer. If it be true that Spirit and Reason rule the universe, then the highest and most enduring knowledge is of the things of the Spirit. That subtle sense of the beautiful and the sublime which accompanies spiritual insight, and is part of it, is the highest achievement of which humanity is capable. This sense is typified, in various forms, in the verse of Dante and the prose outpourings of Thomas à Kempis, in the Sistine Madonna of Raphael, and in Mozart's Requiem. To develop this sense in education is the task of art and literature, to interpret it is the work of philosophy, and to nourish it the function of religion. Because it most fully represents the higher nature of man, it is man's highest possession, and those studies that directly appeal to it and instruct it are beyond compare the most valuable. This has been eloquently and beautifully illustrated by Brother Azarias, that profound scholar who was taken from us all too soon. "Take a Raphael or a Murillo," he says.[5] "We gaze upon the

[5] *Phases of thought and criticism* (New York, 1892), pp. 57–58.

painted canvas till its beauty has entered our soul. The spendor of the beauty lights up within us depths unrevealed, and far down in our inner consciousness we discover something that responds to the beauty on which we have been gazing. It is as though a former friend revealed himself to us. There is here a recognition. The more careful has been our sense-culture, the more delicately have our feelings been attuned to respond to a thing of beauty and find in it a joy forever, all the sooner and the more intensely do we experience this recognition. And therewith comes a vague yearning, a longing as for something. What does it all mean? The recognition is of the ideal." Toward the full recognition and appreciation of this insight into the great works of the Spirit, whether recorded in literature, in art, or in institutional life, higher education should bend all its energies. The study of philosophy itself, or the truly philosophic study of any department of knowledge—however remote its beginnings may seem to be—will accomplish this end. The ways of approach to this goal are as many as there are human interests, for they are all bound together in the bonds of a common origin and a common purpose. The attainment of it is true culture, as Mr. Matthew Arnold has defined it: "the acquainting ourselves with the best that has been known and said in the world, and thus with the history of the human spirit."[6]

We now come in sight of the element of truth and permanence in that Humanism which Petrarch and Erasmus spread over Europe with such high hopes and excellent intentions; but which Sturm, the Strassburg schoolmaster, reduced to the dead, mechanical forms and the crude verbalism that bound the schools in fetters for centuries. Of Humanism itself we may say, as Mr. Pater says of the Renaissance of the fifteenth century, that "it was great rather by what it designed than by what it achieved. Much which it aspired to do, and did but imperfectly or mistakenly, was accomplished in what is called the *éclairissement* of the eighteenth century, or in our own generation; and what really belongs to the revival of the fif-

[6] Preface to *Literature and dogma* (New York, 1889), p. xi.

teenth century is but the leading instinct, the curiosity, the initiatory idea."[7] Many of the representative Humanists were broad-minded men whose sympathies were with learning of every kind. Erasmus himself writes with enthusiasm of other branches of knowledge than literature. "Learning," he says, "is springing up all around out of the soil; languages, physics, mathematics, each department thriving. Even theology is showing signs of improvement."[8] But unfortunately this broad sympathy with every field of knowledge was not yet widespread. The wonders and splendor of nature that had brought into existence the earliest religions and the earliest philosophies were now feared and despised as the basis of paganism; and on wholly false grounds a controversy was precipitated as to the relative worth of literature and of science that in one form or another has continued down to our own day. The bitterness with which the controversy has been carried on, and the extreme positions assumed by the partisans of the one side or the other, have concealed from view the truth that we are now able to perceive clearly—the truth that the indwelling Reason, by whom all things are made, is as truly present, though in a different order of manifestation, in the world of nature as in the world of spirit. One side of this truth was expressed by Schelling when he taught that nature is the embryonic life of spirit, and by Froebel when he wrote, "The spirit of God rests in nature, lives and reigns in nature, is expressed in nature, is communicated by nature, is developed and cultivated in nature."[9] The controversy as to the educational value of science, so far, at least, as it concerns educational standards and ideals, is, then, an illusory one. It is a mimic war, with words alone as weapons, that is fought either to expel nature from education or to subordinate all else in education to it. We should rather say, in the stately verse of Milton:

> "Accuse not Nature: she hath done her part;
> Do thou but thine."

[7] Pater, *The renaissance* (New York, 1888), p. 34.
[8] Froude, *Life and letters of Erasmus* (New York, 1894), p. 186.
[9] *Education of Man* (tr. by W. N. Hailmann, New York, 1888), p. 154.

And that part is surely to study nature joyfully, earnestly, reverently, as a mighty manifestation of the power and grandeur of the same Spirit that finds expression in human achievement. We must enlarge, then, our conception of the humanities, for humanity is broader and deeper than we have hitherto suspected. It touches the universe at many more points than one; and, properly interpreted, the study of nature may be classed among the humanities as truly as the study of language itself.

This conclusion, which would welcome science with open arms into the school and utilize its opportunities and advantages at every stage of education, does not mean that all studies are of equal educational value, or that they are mutually and indifferently interchangeable, as are the parts of some machines. It means rather that the study of nature is entitled to recognition on grounds similar to those put forward for the study of literature, of art, and of history. But among themselves these divisions of knowledge fall into an order of excellence as educational material that is determined by their respective relations to the development of the reflective Reason. The application of this test must inevitably lead us, while honoring science and insisting upon its study, to place above it the study of history, of literature, of art, and of institutional life. But these studies may not for a moment be carried on without the study of nature or in neglect of it. They are all humanities in the truest sense, and it is a false philosophy of education that would cut us off from any one of them or that would deny the common ground on which they rest. In every field of knowledge which we are studying is some law or phase of Energy, and the original as well as the highest Energy is Will. In the world of nature it is exhibited in one series of forms that produce the results known to us as chemical, physical, biological; in the history of mankind, it is manifested in the forms of feelings, thoughts, deeds, institutions. Because the elements of self-consciousness and reflection are present in the latter series and absent in the former, it is to these and the knowledge of them that we must accord the first place in any table of educational values.

But education, as Mr. Froude has reminded us,[10] has two aspects. "On one side it is the cultivation of man's reason, the development of his spiritual nature. It elevates him above the pressure of material interests. It makes him superior to the pleasures and pains of a world which is but his temporary home, in filling his mind with higher subjects than the occupations of life would themselves provide him with." It is this aspect of education that I have been considering, for it is from this aspect that we derive our inspiration and our ideals. "But," continues Mr. Froude, "a life of speculation to the multitude would be a life of idleness and uselessness. They have to maintain themselves in industrious independence in a world in which it has been said there are but three possible modes of existence—begging, stealing, and working; and education means also the equipping a man with means to earn his own living." It is this latter and very practical aspect of education that causes us to feel at times the full force of the question of educational values. Immediate utility makes demands upon the school which it is unable wholly to neglect. If the school is to be the training-ground for citizenship, its products must be usefully and soundly equipped as well as well disciplined and well informed. An educated proletariat—to use the forcible paradox of Bismarck—is a continual source of disturbance and danger to any nation. Acting upon this conviction the great modern democracies—and the time seems to have come when a democracy may be defined as a government, of any form, in which public opinion habitually rules—are everywhere having a care that provision be made for the practical, or immediately useful, in education. This is as it should be, but it exposes the school to a new series of dangers against which it must guard. Utility is a term that may be given either a very broad or a very narrow meaning. There are utilities higher and utilities lower, and under no circumstances will the true teacher ever permit the former to be sacrificed to the latter. This would be done if, in its zeal for fitting the child for self-support, the school were to neglect to

[10] *Short studies on great subjects* (New York, 1872), II: 257.

lay the foundation for that higher intellectual and spiritual life which constitutes humanity's full stature. This foundation is made ready only if proper emphasis be laid, from the kindergarten to the college, on those studies whose subject-matter is the direct product of intelligence and will, and which can, therefore, make direct appeal to man's higher nature. The sciences and their applications are capable of use, even from the standpoint of this higher order of utilities, because of the reason they exhibit and reveal. Man's rational freedom is the goal, and the sciences are the lower steps on the ladder that reaches to it.

Splendid confirmation of this view of science is found in the great Belfast address in which Professor Tyndall stormed the strongholds of prejudice one and twenty years ago. Said Professor Tyndall :[11]

"Science itself not unfrequently derives motive power from an ultra-scientific source. Some of its greatest discoveries have been made under the stimulus of a non-scientific ideal. This was the case amongst the ancients, and it has been so amongst ourselves. Mayer, Joule, and Colding, whose names are associated with the greatest of modern generalizations, were thus influenced. With his usual insight, Lange at one place remarks that 'it is not always the objectively correct and intelligible that helps man most, or leads most quickly to the fullest and truest knowledge. As the sliding body upon the brachystochrone reaches its end sooner than by the straighter road of the inclined plane, so through the swing of the ideal we often arrive at the naked truth more rapidly than by the more direct processes of the understanding.' Whewell speaks of enthusiasm of temper as a hindrance to science; but he means the enthusiasm of weak heads. There is a strong and resolute enthusiasm in which science finds an ally; and it is to the lowering of this fire, rather than to the diminution of intellectual insight, that the lessening productiveness of men of science in their mature years is to be ascribed. Mr. Buckle

[11] *Presidential address, British Association for the Advancement of Science*, Belfast, 1874.

sought to detach intellectual achievement from moral force. He gravely erred; for without moral force to whip it into action, the achievements of the intellect would be poor indeed.

"It has been said that science divorces itself from literature; but the statement, like so many others, arises from lack of knowledge. A glance at the less technical writings of its leaders—of its Helmholtz, its Huxley, and its Du Bois-Reymond—would show what breadth of literary culture they command. Where among modern writers can you find their superiors in clearness and vigor of literary style? Science desires not isolation, but freely combines with every effort toward the bettering of man's estate. Single-handed, and supported not by outward sympathy, but by inward force, it has built at least one great wing of the many-mansioned home which man in his totality demands. And if rough walls and protruding rafter-ends indicate that on one side the edifice is still incomplete, it is only by wise combination of the parts required with those already irrevocably built that we can hope for completeness. There is no necessary incongruity between what has been accomplished and what remains to be done. The moral glow of Socrates, which we all feel by ignition, has in it nothing incompatible with the physics of Anaxagoras which he so much scorned, but which he would hardly scorn to-day. . .

"The world embraces not only a Newton, but a Shakspere—not only a Boyle, but a Raphael—not only a Kant, but a Beethoven—not only a Darwin, but a Carlyle. Not in each of these, but in all, is human nature whole. They are not opposed, but supplementary—not mutually exclusive, but reconcilable. And if, unsatisfied with them all, the human mind, with the yearning of a pilgrim for his distant home, will still turn to the Mystery from which it has emerged, seeking so to fashion it as to give unity to thought and faith, so long as this is done, not only without intolerance or bigotry of any kind, but with the enlightened recognition that ultimate fixity of conception is here unattainable, and that each succeeding age must be held free to fashion the mystery in accordance with its own needs—then, casting aside all the restrictions of

Materialism, I would affirm this to be a field for the noblest exercise of what, in contrast with the knowing faculties, may be called the creative faculties of man."

The actions of the lower animals are conditioned by sensations and momentary impulses. Man, on the other hand, is enabled to raise himself above fleeting sensations to the realm of ideas, and in that realm he finds his real life. Similarly, man's will gradually frees itself from bondage to a chain of causes determined for it from without, and attains to a power of independent self-determination according to durable and continuing ends of action. This constitutes character, which, in Mr. Emerson's fine phrase, is the moral order seen through the medium of an individual nature. Freedom of the will is not, then, a metaphysical notion, nor is it obtained from nature or seen in nature. It is a development in the life of the human soul. Freedom and rationality are two names for the same thing, and their highest development is the end of human life. This development is not, as Locke thought, a process arising without the mind and acting upon it, a passive and pliable recipient. Much less is it one that could be induced in the statue of Condillac and Bonnet. It is the very life of the soul itself.

There is a striking passage in *The Marble Faun* in which Hawthorne suggests the idea that the task of the sculptor is not, by carving, to impress a figure upon the marble, but rather, by the touch of genius, to set free the glorious form that the cold grasp of the stone imprisons. With similar insight, Browning puts these words into the mouth of his Paracelsus:

> "Truth is within ourselves; it takes no rise
> From outward things, whate'er you may believe.
> There is an inmost center in us all,
> Where truth abides in fullness; and around,
> Wall upon wall, the gross flesh hems it in,
> This perfect, clear perception. . .
> . . . And, to know,
> Rather consists in opening out a way
> Whence the imprisoned splendor may escape,
> Than in effecting entry for a light
> Supposed to be without."

This is the poetical form of the truth that I believe is pointed to by both philosophy and science. It offers us a sure standing-ground for our educational theory. It reveals to us, not as an hypothesis but as a fact, education as spiritual growth toward intellectual and moral perfection, and saves us from the peril of viewing it as an artificial process according to mechanical formulas. Finally, it assures us that while no knowledge is worthless,—for it all leads us back to the common cause and ground of all,—yet that knowledge is of most worth which stands in closest relation to the highest forms of the activity of that Spirit which is created in the image of Him who holds Nature and Man alike in the hollow of his hand.

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II

THE EFFECT OF THE THEORY OF EVOLUTION ON EDUCATION[1]

Like all great truths, the idea of evolution has been held in a vague way even from the earliest dawn of thought. But only very recently do we observe any attempt to apply it to life. We find the explanation of this in the profound difference between the old philosophy and modern science in their respective attitudes toward truth. To the old thinkers, pure thought and gross matter, the ideal and the real, belonged to two different worlds. They never dreamed of bringing down their noble thoughts to the practical concerns of life—to apply them to social organization or politics or religion. These glorious ideas were for the delectation of thinkers only. These daughters of the intellect were too pure and holy to be married to the grossly practical. They were vestal virgins about the sacred altar of truth; beautiful exceedingly, but forever barren. To modern science, on the contrary, every truth has, and must have, its practical application. The tree of knowledge must bear appropriate fruit for the material benefit of humanity. Evolution is now, therefore, applied to practical life, because it has passed from the domain of vague philosophic speculation into that of definite scientific knowledge. This change has not taken place all at once, but only by the successive labors of many men, each contributing his own characteristic part. It was the part of Lamarck to awaken scientific attention and deeply stir the scientific mind. It was the part of Darwin to convince the scientific mind of the truth of the evolution of the organic kingdom. It was the part of Spencer to extend the law of evolution to embrace every department of

[1] Address delivered before the National Educational Association at Denver, Colo., July 11, 1895.

nature, and thus to make it applicable to society, to religion, and to education. It was the part of Huxley to fight the battles of evolution and to conquer its acceptance by the intelligent, but unscientific public. It was, and is, the part of American evolutionists to complete the evidence from palæontology where it was weakest, and also—for we are less hampered by tradition here than elsewhere—to apply it fearlessly, yet I hope reverently, to religious and social thought.

The final effect has been to revolutionize our whole view of nature and of man; to change the whole attitude of the mind toward truth and thus to modify deeply our philosophy in every department; and, therefore, also to modify profoundly our theory and methods of education. It is this effect on education that I wish to bring before you this evening. But the subject is so large, and my time so short, that I can only touch lightly some most salient points.

I would be glad to point out to you how the theory of evolution indirectly, but in a most important way, affects education (as it does all departments of thought) by simply elevating the intellectual standpoint and widening the intellectual horizon; but I must forego this and proceed at once to its direct effect on our theories and methods of education. And here, as you already anticipate, I must speak first of all of its immediate effect on biology; and then afterward on its indirect effects, through biology, on nearly all the higher departments of thought. These I shall call higher lessons taught in the school of evolution.

Organic evolution is evolution *par excellence*. In the mind of Darwin evolution was, and in the minds of very many it still is, identified with the theory of origin of species by descent with modifications. To many it means only a continuous genetic chain of all organisms from the earliest to the present, and, therefore, a blood-kinship among all existing organisms from lowest to highest. It is to Spencer that we owe the extension of this law of continuity to every realm of nature, and thus this mode of thinking to every realm of thought. Organic evolution, therefore, whether of the individual or of the organic

kingdom, is the type of evolution. In that department the battle of evolution was fought and won. Right here, in the origin of new organic forms, was found the barrier to the acceptance of the law of continuity—the stronghold of supernaturalism in the realm of nature. When this barrier gave way, the whole domain of thought was immediately conquered. It is right, then, that I should take up this department first.

There is a striking contrast between the old natural history and the new biology. The one is perhaps best represented by Audubon, the other by Huxley. In the one imagination predominates, in the other reason; in the one, love of field and forest and mountain, in the other thoughtful work in the laboratory. The one studies form and habits, the other structure and function. The characteristic implements of the one are the shotgun, the insect-net, and the dredge, of the other the scalpel and the microscope. In the ideal biologist, these two must be united in equal proportions. Such union was nearly realized in Agassiz and Darwin, because they stood just at the parting of the ways. Zoölogists now belong mainly to the one class or the other, but predominantly to the second class. In botany, the differentiation has not been so extreme. The change is, therefore, best illustrated in zoölogy.

Such, then, is the contrast between the old and new style naturalist. The change may, perhaps, be regretted by some, but was absolutely necessary in the development of biological science. The old-style naturalist had been working from time immemorial, enthusiastic in traveling, observing, collecting, describing, classifying; in a word, gathering the materials of science; but thoughtful men began to ask, "Where is the science itself?" "What light does all this throw on the real problem of life?" "What is the meaning of the classification so laboriously constructed?" "What is the meaning of the facts of geographical distribution of species gathered by such extensive traveling?" The old natural history as a real science seemed to have reached its limit, if it was not indeed moribund. Collections of dry plants were contemptuously compared to gathered hay. Geographical distribution of organ-

isms was a tiresome chaos of curious facts without connecting idea. Just then came evolution—a great new idea, informing and giving life and meaning to this dead mass of facts, bringing order out of this chaos, "creating a soul under the dry ribs of this death." The true meaning of classification is at once revealed, viz., the various degrees of blood-kinship in descent. Geographical distribution of organisms is at once completely explained by migrations produced by the glacial epoch and the slow evolution-changes produced by a changed environment, physical and organic. The strange and hitherto inexplicable course of embryonic or ontogenic development becomes now but a brief recapitulation of the phylogenic or family history. It is easy to imagine the prodigious impulse given to the sciences of life. The deepest problems of plant life, animal life—yea, of human life and social life—seemed now within reach of science. The army of investigators was increased tenfold. Biological laboratories sprang up everywhere, on lake- and sea-shores, and still more numerously, in schools, colleges, and universities.

Such was the intellectual impulse given by the introduction of a great new idea. But great new ideas always involve new methods of work and, therefore, new methods of teaching. The new method has been called by different names. I will call it the "evolution method." But as this is only one of many methods of science, I must introduce its discussion by a few words on scientific methods generally.

We all know the prodigious enlargement of the domain of modern thought produced by the birth and rapid growth of the sciences of nature. But until recently there has been but little corresponding change in the subject-matter of education, especially in the lower schools. This was right. The reason is obvious. All attempts to teach science by the old text-book methods gave very unsatisfactory results. Science-teaching, as a means of mental culture, seemed far inferior to mathematics and the languages. These latter, at least to some degree, threw the pupil on his own resources; but science-teaching by pure classroom, text-book methods, is the barest

memoriter exercise. Now, science is nothing if not a knowledge of nature at first-hand, and science-teaching is nothing unless, in some degree, it brings the pupil in contact with nature. The new knowledge must have new methods. In a word, science must be largely taught in the field and in the laboratory. This field and laboratory method must supplement every other method in science-teaching. This is now so generally understood that it is unnecessary to dwell on it.

But there is another and deeper sense in which we may use the term method, which is even more important. It is method not in the sense of use of eye and hand, but of use of brain; not in sense of dexterous manipulation, but of orderly thinking. In this sense, scientific methods bear the same relation to intellectual progress that tools, instruments, and machines bear to material progress. They are intellectual contrivances whereby we accomplish results which would otherwise transcend our power. As the civilized man has no superiority over the savage in bare-handed strength, and the great material results accomplished by the former are wholly due to the use of material contrivances called tools, instruments, machines—so the scientific man claims no superiority over others in unassisted intellectual power, and the great results accomplished by him in the acquisition of knowledge and in the conquest of nature are wholly due to the use of intellectual contrivances, called scientific methods. These are mainly three: 1. The method of symbols, or mathematical method. We all know the power of this method. We all know how by the use of a few numeral digits, a few letters, a and b, x and y, and a few signs, $+$ and $-$ and $=$, the veriest schoolboy may quickly solve questions which would defy the unaided power of an intellectual giant. 2. The method of experiment, especially applicable to physics and chemistry. Physical phenomena are usually too complex, too affected by disturbing causes and complicating conditions, to be understood at once as they occur in nature. The physicist, therefore, removes, one by one, these disturbing causes and complicating conditions, watching the result, until the true cause and the necessary

conditions are discovered. I need not tell you what this method has accomplished. 3. The method of comparison. The phenomena of life in its higher forms are so complex that we cannot understand them without simplification, and yet so delicately adjusted that in most cases we cannot, we dare not, use the method of experiment. If we introduce our rude hands to modify the phenomena, we are in danger of destroying life itself—the very thing we are investigating. But nature herself has prepared for us three series of experiments. 1. As we go down the scale of life from man through vertebrates and invertebrates to the lowest protozoa, the complex structure and functions of the animal body become simpler and simpler, by the removal of one complication after another, until finally the complex problem of life is reduced to its simplest terms. This is the taxonomic series. 2. Again, as we go backward in the history of the development of any one of the higher animals, say man, from the mature condition through the stages of youth, new-born, embryo, to the earliest germ cell, we find that structure and function again become simpler and simpler until again the problem of life is reduced to the simplest terms. This is the embryonic or ontogenic series. 3. Again and lastly, if, commencing with the fauna of the present geological epoch, we go backward in geological time, taking successively those of earlier and earlier periods, even to the dawn of life, we find a similar series of simplifying structures and functions until we again reach the simplest possible expression of the problem of life. This is called the geological or phylogenic series. This last is *par excellence* the evolution series. But they are all evolution series, since they are similar and all have their origin in evolution.

It is by comparison of the terms in each one of these series, and of the three series with one another, that all true scientific knowledge in biology has been attained. It is therefore called the "comparative method." It was to some extent used and so framed before the birth of evolution as a scientific theory; but evolution has given it a new meaning and a new power and greatly extended its application, and, therefore, it

should now be called the "evolution method." It is the great method of discovery in all departments which are too complex to be investigated by other scientific methods. When phenomena are too complex to be readily understood, and at the same time too delicately adjusted to submit to the method of experiment, all we can do is to watch all the stages of increasing complication—the process of gradual becoming. If by the method of experiment we put nature on the rack and extort from her the truth, by the evolution method we obtain the truth, less boldly but not less efficiently, by watching and surprising nature in her most secret modes of working.

This method, although first used in biology, may be and has been extended to all the more complex phenomena of human life—to psychology, to sociology, to politics and government, and even ethics and religion. Scientific methods generally, but this one especially, may be likened to the "little leaven which a woman took and hid in three measures of meal"—a little, very little scientific method introduced into three measures of the old curriculum has "leavened the whole lump." But we all know how much depends on the leaven. Alas, how much bad leaven has been used, especially in sociology! It is necessary, therefore, to say something of how to make good leaven. This brings me to the subject of what I call schools of methods.

It may be regarded as a law that although each one of these methods may be used in several departments, yet it is best developed and is used with most success in the simplest and lowest department, where it was first introduced; and thus this department becomes the school for its skillful use. Thus, for example, while the method of symbols is used in other departments,—as in physics, chemistry, and even sometimes in logic,—yet the proper school for its skillful use is mathematics, where it was first introduced, and is still most powerful. Again, although experiments may be used in many departments,—as in chemistry, physiology, psychology, and even perhaps in sociology,—yet undoubtedly the proper school for the skillful use of this method is physics. So also the method

of comparison or the evolution method may indeed be used in all the more complex departments of knowledge, but the only proper school in which to become imbued with its characteristic spirit and practiced in its skillful use, is biology. Other and still higher departments can never take on a true scientific form until they use the method which has proved so successful in biology; and this they must learn to do in the biological school. As anatomy, physiology, and morphology became scientific only by becoming comparative anatomy, physiology, and morphology, so also psychology will never become scientific until it becomes comparative psychology, nor sociology until it becomes comparative sociology.

I have said that the leaven of scientific method has leavened the whole lump of the school curriculum. I now go farther and say that the leaven of evolution and the evolution method has leavened the whole lump of human knowledge, especially in all those departments which are too complex to be subdued by other methods. This method is applicable not only to plant life and animal life, but also to all the phenomena of human life, individual and social, and therefore to psychology, to language, to history, to sociology, and to ethics. In fact, the enormous recent advances in all these are due wholly to the use of the so-called historic method. But what is this but another name for the evolution method? It would carry me too far and take me too long to justify this assertion in all these departments. Let me draw your attention only to a few of the most important lessons taught us in these higher departments.

A lesson in psychology—Until very recently, the psychical phenomena of man were studied as a separate department of knowledge, having no possible connection with any other and capable of investigation only by the method of introspection; and an elaborate system of philosophy has thus grown up wholly separated from other knowledges. But it is now no longer possible to admit such disconnection. There can no longer be any doubt that man, both body and spirit, came by a process of evolution from some lower form of animal; that

humanity emerged gradually by a natural process out of animality. Not only every organ and function of the human body, but every faculty of the human mind, has its beginnings and foreshadowings, its embryonic condition in the higher animals. It is quite evident that psychology can never become a progressive science until every stage of the development of the psychical nature of man is traced; until the psychical phenomena of man are studied in comparison with those beginnings of the same which we find in the higher animals, and in infants; until we trace all stages of the process by which they became what we find them in the mature man. Moreover, even the experimental method is now applied to psychology with encouraging success. We have thus in psychology at least three methods of research, viz., the method of experiment, the method of comparison or evolution method, and the method of introspection. The relative domains of these have not yet been adjusted. The experimental method, from which so much is now hoped, although undoubtedly of great value, is, I believe, limited in its application to the lower phenomena, *i. e.*, those most allied to physiology. Introspection, on the other hand, is limited to the higher phenomena, *i. e.*, the distinctively human. The method of comparison, or evolution method, is probably without limit in its application. It is to this method, therefore, that I look with most hope.

A lesson in sociology—The old idea of the origin of things was that of creation at once by fiat, without natural process, and permanence thereafter until another creation. Hence arose the doctrine of instantaneousness of specific origin and the permanency of specific types. According to this view, if the organic kingdom advances at all, it must be by successive exterminations of old forms and re-creations of new and better forms. According to this view applied to the domain of philosophy and science, all truth must be absolute, unchangeable, and permanent; and therefore, if knowledge advances at all, it must be by a succession of theories exploded and other and better ones substituted. In theology, views of God, of man, and of nature and their mutual relations must be either per-

fectly true or utterly false and baneful. Forms of religion and creeds are either perfect, God-given truth or else inventions of the devil to deceive mankind. Toleration, therefore, is inconsistent with loyalty to truth. In politics, the unreasoning antagonisms of parties come necessarily from this attitude of the mind. In social philosophy, improvement in society can only come by utter destruction and complete reconstruction out of entirely new materials. Thus, in all things, by this old view, advance can take place only by a succession of catastrophes and remakings out of the whole cloth.

Evolution changes the whole attitude of the mind in this regard. The very first lesson taught by evolution is that nothing originates all at once, like a creation by fiat; but all things are in a state of continuous change and growth. Progress is not by a succession of destructions and re-creations, but by a gradual process of evolution. As in the evolution of the organic kingdom, some forms, *i. e.*, the more rigid, perish and leave no progeny, while some, *i. e.*, the more plastic, are modified into new forms, better suited to the ever-changing environment; and all the new forms come thus only by modification of the old; so in the advance of science, some ideas and theories die out and leave no progeny, while others are modified to newer and truer forms, and all the new and true forms come thus only by modification of the old. And so also the progress of society, of religion, of all things, is not by sweeping destructions and recreations out of new materials or reorganizations on an entirely new basis; but must be only by modification of old forms into the higher new. In a word, the social organism is not made but grows.

A second lesson in sociology—There are two views of the relation of the individual to society which may perhaps be called the ancient and the modern. According to the one, the individual is wholly subordinate to society, and has no rights in the presence of social interests. The individual has no value except as an organ of the body politic. This view is abhorrent to the modern mind, which has indeed gone to the other extreme of apotheosis of the individual. This great change

was undoubtedly due to the introduction of Christianity, which exalted to infinity the worth of the individual immortal human soul, while it correspondingly belittled the value of society as earthly and temporary. This was especially true of the early Christians, for whom the end of the world was near at hand. This idea of the supreme importance of the individual, and that society exists only for us, the individuals of to-day, has reached its culmination in the present time, and nearly all the evils which now threaten society may be traced to this source. The higher law of the ancients was the interest of society; the higher law of the moderns is the dictate of the individual conscience. The evils of this extreme view are becoming so obvious that there is a strong tendency to swing back again to the other extreme of socialism. Now, there is a profound truth in both these views, and they must be combined and reconciled in a true social philosophy. This, I believe, evolution will help us to do. Let us see.

Organic evolution reached its term and completion in achieving man. But evolution did not stop there; for in achieving man, it achieved also the possibility of another and higher kind of evolution, and was therefore transferred to a higher plane, and continued as social evolution or human progress. Now, as the highest end, the true significance, the *raison d'être* of organic evolution was the achievement of man; so the highest and real meaning of society and social progress is the achievement of the ideal man. This view entirely changes the relation of the individual to society by giving a new and nobler meaning to society. Individual interests must be subordinated to social interests, not only because society is the greater organism, nor even because it represents all other individual interests, but also, and chiefly, because society is the only means of achieving the ideal. The higher law from this point of view is loyalty, not to society as the ancients would have it, nor yet to the conscience as we moderns would have it, but to the divine ideal humanity. Fortunately for us, however, the highest interests of the individual are also thereby subserved.

This point is so important that I must stop a moment to explain and enforce it.

The social organism has often been compared to the animal organism, the body politic to the animal body, and social progress to organic evolution. Doubtless this comparison and the inferred likeness may be and have been carried much too far. Doubtless there are many fundamental differences arising from the presence of new and higher forces in the social body, and of new and higher factors in social progress; and no one has insisted on this more than I. But it is a mistake also to minimize the resemblance. It has been common for the opposers of such resemblance to say that in the ideal of the animal organism, the life and individuality of the constituent parts are completely merged in the life and individuality of the whole; that the part is of no value except as an organ of the whole; and that while this ideal may have been to some extent realized in some ancient societies, it is utterly abhorrent to the modern mind; the infinite value of the eternally, enduring human soul forbidding any such merging of the individual life into the common social life. But let us not exaggerate the contrast. It is not true that in the animal body the life of the part is wholly lost in the life of the whole. On the contrary, such life as each part is capable of is completely realized; each part has the very best that it is capable of. Again, it is not true that the part works for the whole without corresponding benefit in return. On the contrary, the acknowledged ideal of the social organism, viz.: that each part works for the whole, and the whole for each part is completely realized in the animal organism. Where then, is the difference? For it must be very fundamental. It is this: In the one case the integrating bond is material and necessary, and the function of each part unchangeably fixed forever; in the other, the integrating bond is spiritual, and therefore free, and the function of each part is freely chosen, and may be freely changed for the better. In the one case, the union is by necessary law of mutual dependence, in the other by a free law of mutual love and mutual help.

Now, if society consisted only of ideally perfect, happy, unimprovable beings associated only for mutual enjoyment, then, indeed, I suppose, the infinite worth of the immortal human soul, in comparison with any temporary association, would make such association wholly subordinate to the individuals. But when we remember that human society is an association of individuals not long since emerged out of animality, nor far on the way toward a true, *i. e.*, an ideal humanity, and that the achievement of that ideal is the real end and meaning of our earthly life; and, finally, that an organized society is the necessary and only means whereby the ideal may be achieved, whether in the individual or in the race, we see at once that the immediate individual interest must be subordinate to this, the highest interest of humanity. But subordination is not sacrifice. On the contrary, it is the highest success for the individual. In subserving this, the highest interest of humanity, each individual is thereby subserving his own highest interests. In striving to advance the race toward the ideal he is himself realizing that ideal in his own person.

Why, then, are we so slow to learn this lesson? Why are we so loath to surrender our extreme individualism? I answer, not only because it is in accord with our natural selfishness, but also, and I believe chiefly, from the effects of an inherited narrow philosophy of life. Is it not evident that so long as the Golden Age was behind instead of before us; so long as man was regarded as in a state of sad fall from a pristine ideal condition; so long as it was believed that the perfect image of God, once possessed, had been lost and must be restored, not through society, but by some inscrutable miraculous agency; so long as this was the mental attitude, the supreme importance of society as a means of salvation, *i. e.*, of attaining the ideal, must have remained unrecognized? The outcome of such a mental attitude was of necessity the individualism run-mad of the present day. But if on the contrary, as evolution teaches, our race has gradually emerged out of animality into humanity; if the Divine image was at first dim, scarcely recognizable, and the mission of humanity is, not to restore,

but to brighten that image until it is perfect—if the ideal, the Golden Age, is not in the past but in the future—then our whole mental attitude toward society becomes changed—then the good of the individual must be, not sacrificed indeed, for that is not necessary, but freely subordinated to the good of society; then the prevailing law is not the law of mutual antagonism and struggle, and survival of only the strongest and fittest; but the law of mutual love and mutual help; and the making of as many as possible strong and fit to survive.

Still another lesson and the last—But whether to call it a lesson in psychology, or in sociology, or in ethics, I do not know, nor does it matter much; for all departments meet on the highest plane. But I suppose it may be most properly called a lesson in ethics, for it offers us a moral ideal.

I have said in a previous lesson that individual interests must be subordinated to the attainment of the ideal. Now. what is this ideal? I believe that evolution will help us to find it. If man has indeed emerged out of animality into humanity, as evolution teaches, then must he approach his ideal just in proportion as he rises above the distinctively animal and lives habitually on the distinctively human plane; and he completely attains it when the distinctive humanity is carried out to its highest limit. Now, it is evident that this proposition involves not only a moral ideal but a means of attaining it; *i. e.*, a philosophy of the right conduct of life. Let us stop then to differentiate it clearly, but very briefly, from other and older philosophies of life. I feel constrained to do this lest you should think that it involves an ascetic philosophy.

There are two opposite philosophies of life which have hitherto dominated the world of thought, aye, and of conduct too. According to the one, our nature is essentially dual, *i. e.*, animal and spiritual, without cordial relation between. The pure spiritual nature is imprisoned here on earth for a brief space in an impure material body and dominated by it, and the higher spiritual nature becomes purer, nobler, freer, just in proportion as it despises, tramples underfoot, and extirpates the animal nature. This is the ascetic philosophy of life.

According to the other, our nature is one. Man is simply a higher kind of animal. His pleasure may, indeed, be higher, more refined than that of other animals, but still they are all on the same plane—the animal. Pleasure, enjoyment—the more refined the better, of course—is the only end of human as of animal life. Virtue is only a more refined kind of selfishness. This is the hedonistic philosophy of life. Now, evolution completely combines and reconciles these two mutually excluding opposites, both as to the nature of man and as to the philosophy of life, and is, therefore, more rational than either. According to the evolution view, humanity emerged out of animality, the spirit of man out of the *anima* of animals; but at the moment of emergence it was born into a new and higher spiritual world of self-consciousness and immortality. If this be so, then evidently the mission of man and the true philosophy of the right conduct of life are not an extirpation but a subordination of the animal to the higher spiritual nature. And this is attained not by the natural decay nor by the voluntary extirpation of the animal, but by the natural growth and the voluntary strengthening of the higher spiritual nature. The animal was in evolution the mother and is still the nourisher of the spiritual; and, therefore, the stronger the animal nature the better, if so be it is held in due subjection. There is not an appetite, passion, or emotion of our animal nature but is contributive to our spiritual nature, if only it be duly subordinated. In our complex human nature the higher is nourished and strengthened by its connection with the more robust lower, and the lower purified and refined by its connection with the higher, and the whole man is thus elevated to a higher plane without violating the integrity of his manhood.

So much was necessary to say lest I be misunderstood as sustaining an ascetic philosophy. I repeat, then, if man has emerged out of animality into humanity, then he approaches his ideal just in proportion as he departs from the characteristically animal plane and lives on the distinctively human. In animals the whole life and activity are concentrated on the

now. Man, on the contrary, by memory and imagination, and more and more as his distinctive human nature predominates, lives also in the past and the future. His life expands more and more backward and forward, until in the ideal man he lives equally in all time. For him there is equal reality in all moments, past, present, and future. He weighs in equal balance all events without any prejudice in favor of the now, and is thus, as it were, unconditioned by time. This is the ideal of wise and prudent conduct, the intellectual ideal. Again, in animals the whole life and activity are concentrated on the self, although an unrecognized self, for selfhood is first recognized in man. Man, on the contrary, and more and more as his distinctive human nature predominates, lives also in and for other selves. His life expands and incorporates more and more the lives of others, through a realizing sympathy and love. He reaches his ideal in this direction when his life spreads equally over all other lives in proportion to their real work; when self-love no longer in the least disturbs the justness of judgment or unduly influences conduct; when self and other selves are weighed in the same just balance—in a word, when he is at last unconditioned by self. This is the ideal of right conduct—the moral ideal. The moral law of equal love to self and neighbor is now fulfilled. This ideal, first given by the moral insight of the Founder of Christianity, is now at last verified by science. Observe that the condition and beginning of this whole process of evolution are the recognition of selfhood in man. But observe also that man finds selfhood only to lose it again in love.

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III

EDUCATION ACCORDING TO NATURE [1]

He would do the world no mean service who should write an impartial history of fads, showing the rise, progress, termination, and results of each. Such a history would doubtless discover to us the fact that even the thinking world is addicted to hobby-riding, and that successive fads are the rungs of a ladder on which thought ascends from lower conceptions to higher, and thus gains wider and wider horizons for truth. What were Nominalism and Realism but philosophical fads, engrossing men's thoughts for a season, kindling the controversial spirit up to the fighting-point, then waning in interest, and finally giving place to other fads? Phlogiston, Malthusianism, Darwinianism, the nebular hypothesis, phrenology, and probably free coinage, Christian science and hypnotism are phenomena of the same sort. These are all "guesses at truth." Their devotees, indeed, regard them as truth itself, but successive thinkers finally separate the grains of pure metal from the larger volume of alloy, garner the precious residue into the general storehouse of science, and then make a venture at new guesses. The line of Sherman's march to the sea is now marked by abandoned forts, exploded shells, and half-filled trenches. So the triumphal march of thought is marked by abandoned hypotheses, exploded theories, and empty conjectures.

The same phenomenon is observable in the special science to which we are addicted. Men of my years have lived through a succession of educational fads, and our predecessors, near and remote, were doomed to traverse a similar route. Within our own time object-teaching rose in the East, if not as a sun, at least as a star of the first magnitude, but its dis-

[1] An Address delivered before the National Educational Association, at Denver, Colo., July 10, 1895.

tinctive light has been lost in its passage across the horizon. Then appeared other lights, from time to time, great and small, to which we did homage, such as manual training and the inductive method; and now the suns or meteors that are beginning to blaze on our pedagogic firmament are concentration and "a pot of green feathers."

We are not to forget that the monitorial system swept over the country eighty years ago like an epidemic, and that it took such a stalwart as De Witt Clinton clean off his feet. The head that could project the Erie Canal could also utter such a wild prophecy as this: "I recognize in Lancaster the benefactor of the human race. I consider his system as creating a new era in education—as a blessing sent down from heaven to redeem the poor and distressed of this world from the power and dominion of ignorance."[2] Returning to the figure just employed, Lancastrianism was a blazing comet, creating a profound sensation at the time of its appearance, but it speedily burned out, leaving hardly as much as a poor cinder by way of remembrance.

In place of fad I might have used the word craze, or hobby, but fad is the newer term, and I use it to denote a wide class of phenomena, social, political, philosophical, educational, and even religious. I use the term in a more serious sense than the ordinary, to indicate a phase of thought that, while serious, is at the same time partial and shallow, and, in its appearance and disappearance, epidemic.

It will be readily guessed that I include "Education according to Nature," or "Follow Nature," among educational fads. In the sense just stated, I do; only "Nature" must be considered as the most respectable of these fads, by reason of its antiquity and longevity; though sometimes, as in the case of Joseph Payne and other imitators of Mr. Spencer, the whole treatment is little better than cant—shallow and offensive.

The precept, "Follow Nature," is prevalent in ethics, in education, and in medicine, where Nature is set up as a criterion of right and wrong, of true and false. A practice

[2] S. S. Randall, *History of the common schools of New York*, p. 28.

that is supposed to be in conformity with Nature is thereby proved to be right, or true; while a practice that can be shown to be contrary to Nature is assumed to be wrong, or false. Thus, Aristotle defends slavery because it is *natural*, some men being born to rule, others to serve, some being strong, others weak; while he condemns usury, or the taking of interest, because it is *unnatural*. Flocks, and crops springing from the soil are wealth proper, and for convenience they may be converted into money; but to produce money from money, a dead thing from a dead thing, is unnatural, and therefore wrong.[3] Our modern temperance reformers use the same argument. Alcohol is an evil, because it is produced by the decay or rotting of a natural product, as corn, rye, or wheat; though just why vinegar should escape condemnation is not at all clear.

Peter the Great suffered a similar delusion when he ordered his naval cadets to use sea water for drinking purposes. Is not the sea the natural domain of the sailor, just as the land is the natural domain of the soldier? The sailor must therefore adapt himself to his environment; he must draw his sustenance from the element on which he lives. Had Peter taken wise counsel before giving this order, he might have been reminded that it was a scientific error to include sailors and salt-water fish in the same category; but he was following Nature, as he supposed, and his cadets had to perish.

The same false analogy betrayed John Locke into his "hardening process." Men in a "state of nature" wear no shoes, and though their clothing is very scant, even in winter, they adapt themselves to rigors of temperature without harm; my young gentleman should therefore follow Nature rather than art, in the matter of clothing, and so should wear no shoes; but as he is compelled to live in society, we will strike a compromise, and he may wear shoes, provided they are plentifully supplied with holes.

The phrase "Education according to Nature" at once sug-

[3] "Down to the Norman conquest the Britons had 'living money' and 'dead money,' the former being slaves and cattle, the latter metal."

gests the name of Rousseau, for it was he who, in his *Émile*, fairly set the fashion for subsequent writers on education, great and small. Mr. Spencer adopts the new fashion, and his pages are overshadowed with capital N's. He accepts the new mythology, writes out a new creed, and virtually founds a new school of theorists. No theologian was ever more dogmatic. He postulates Nature as an infallible guide, and then deduces educational processes with almost mathematical precision. Whatever will not fit into his system, as history, he conveniently rejects.

Rousseau was essentially a pessimist, placing the Golden Age in the distant past rather than in a distant future. Civilization, so called, was full of perversions and defilements; the arts and sciences were instruments of corruption; and the only salvation for the race was a return to primitive simplicity and purity. As the main principle of political philosophy was the assumption that society was retrograding because it was receding from Nature, he readily adopted the conception that the salvation of society lay in a new system of education, whose purpose should be to bring men back to Nature, and thus to purity and to peace. The myth Nature dominated Rousseau's thought, or rather his feeling, for he felt rather than reasoned. Everything must be *natural*, even his children. Like Mr. Spencer, though in another manner, Rousseau was a rhetorician, enamored of the sound of his own voice; and such rhetoric is always fatal to logic. He carries conviction, as the advocate or the orator does, by enlisting the feelings on his side of the controversy. Hence his *Émile* is a romance, and the characters that appear in it are as unreal as any that one may find in modern fiction. And yet it is not a contradiction to say of it what Rousseau himself said of the *Republic:* "c'est le plus beau traité d'éducation qu 'on a jamais fait."

Though Rousseau nowhere defines Nature, it is not difficult to understand the general sense in which he uses this term. His whole creed is virtually contained in the opening paragraph of the *Émile:* "Everything is good as it comes

from the hands of the Author of Nature; but everything degenerates in the hands of man. He forces one country to nourish the productions of another; one tree to bear the fruits of another. He mingles and confounds the climates, the elements, the seasons; he mutilates his dog, his horse, and his slave; he overturns everything; he loves deformity, monsters; he will have nothing as Nature made it, not even man; like a saddle-horse, man must be trained for man's service, he must be made over according to his fancy, like a tree in his garden."[4]

In other terms, restore the world to the condition it was in before it began to be modified by man's agency, and we have it in its ideal state, "the state of nature." Relieve a modern garden from human interference, and it will soon revert to a state of nature. Natural fruit is better than fruit that has been cultivated. The ideal horse is the wild horse. The ideal man is the red Indian. Education is not an ascent from wildness, but a return toward wildness. Rousseau admits men to his state of nature provided they make no attempt to refashion one another or to modify their environment. The moment they begin to do this, perversion sets in, and art usurps the place of Nature. This perversion of Nature by art has gone to the greatest length in cities. Hence, relatively, we return to Nature when we go from the city into the country, as from Paris to the woods of Montmorency.

How much of this is rhetoric, and how much sober conviction, it is doubtless impossible to tell with any exactness. In construing Rousseau's theory we must make some allowance for temperament, and also for the extravagances into which reformers invariably fall. Overstatement is an element in a reformer's outfit, whether it takes the form of a satire, as in Rabelais and Dickens, or of fiction and fancy, as in Rousseau. All an interpreter can do is to trace the main lines of the argument and show the limitations of the theory by typical examples. This I will attempt to do in the sequel.

The practical application of Rousseau's theory is well

[4] *Émile*, bk. i. p. 1.

exhibited in his doctrine of discipline by natural consequences. Through willfulness, *Émile* breaks the windows of his chamber. His father replaces them, but the boy again breaks them. The transgressor is thereupon turned over to the relentless laws of Nature. The windows are not replaced, but the boy is confined to his room, where the cold wind blows on him by day and by night, thus exposing him not only to discomfort, but to danger; he might take a severe cold and die of pneumonia. The great danger of this exposure occurs to Rousseau, but he promptly replies that it is better to die of a cold than to be a fool! In the case of *Émile*, however, matters do not come to this sad pass, but he is finally conquered by suffering the disagreeable consequences of his own folly and reforms in a manner befitting the author's theory.

The application of this doctrine is extended still further. To cure *Émile* of his vanity and forwardness, he is allowed to compete with a professional juggler, who readily makes him the laughing stock of a jeering crowd. To teach him worldly wisdom and caution, he is allowed to fall into the hands of sharpers and cheats, who fleece him in fine fashion; and, finally, to make him virtuous, he is allowed to fall into vice—he is drawn through the mire in order that he may afterward be washed and experience the sensation of being clean. In outline, this is *Émile's* course in experimental ethics.

Though Rousseau, as before noted, does not define Nature, he makes it quite easy for us to infer what he means by the term, and a proximate definition would stand about as follows: *The material world affected by physical forces* (gravity, heat, light, electricity, etc.) *and inhabited by uncivilized men.*

For purposes of right education, *Émile* is to be pushed as far back as possible into this primitive and uncorrupted world; and society itself, in order to be rescued from growing corruption, must make a return toward this primitive simplicity and perfection. This was Rousseau's ideal education and his ideal state of society; but he had the sense to know that these ideals were impracticable, and so he accepts a compromise; he uses consummate art to reproduce a quasi state of nature,

but this more than Herculean effort involves him in countless contradictions, absurdities, and follies.

Mr. Spencer personifies nature (Nature) and thus carries the myth to its most perfect development. With him, Nature is physical force personified, and education is experience, or contact with environment. His general theory may be summarized as follows: The individual of to-day must be educated just as the race was educated historically; the race was self-instructed through experience; the individual must therefore rely on his personal experience for his knowledge and training. As Nature was the tutor of the race, so Nature must be the tutor of each individual of the race. Of course, in accordance with this theory, the knowledge that is of most worth is science, for science has grown out of the experiences of the race; is, in the Aristotelian sense, a natural product; and is knowledge that can be reproduced and verified by each succeeding generation of learners. Past experiences constituting what is commonly known as history cannot be thus reproduced and verified, and therefore history is not knowledge proper. And as literature, a play of Shakspere, for example, cannot be rediscovered or reproduced according to the Spencerian dogma, there is no natural place in this system for literature and kindred subjects. Literature is too much tainted with art to fit into a scheme of education according to Nature.

Like Rousseau, Mr. Spencer is clearest when he applies his hypothesis to moral education. Prior to experience, an infant, if permitted, will put its little fingers in the flame of a candle. Let it do this, advises Mr. Spencer, even though a painful blister is the consequence. According to the same method the child may lay hold of hot fire-bars and spill boiling water on its tender skin. In this fashion the infant is being educated through experience by its godmother, Nature. This is a reappearance of Rousseau's doctrine of consequences. From this point of view education may be defined as experience coming from contact with matter and with physical force, or, in shorter phrase, with one's environment.

It may be urged against Rousseau and his disciples that the Golden Age of society is not in the remote past, but in the future—that humanity is making a forward movement, slow, perhaps, but sure; that what we call civilization will not be abandoned for savagery; that cities, Rousseau's especial abomination, are both a product and an agent of civilization; and that his assumption of the nobility of primitive man is an unsupported fiction. The untutored savage, as seen and described by travelers, is Nature's handiwork, a fair specimen of what she can do in the way of educating when unassisted by human art. It has not been observed, however, that men are made either happier or better by being allowed to revert to a state of nature.

Again, a proper conception of Nature will include man, his endowments, and his works. Is not man as natural a product as a beaver or a horse? If instinct is a natural endowment of the beaver, why are not reason, imagination, and language also natural endowments of man? Why make a radical distinction between the defenses built by beavers and the defenses built by men? Why is it less natural and right for men to live in communities than for bees and ants? Why is not a poem as natural a product as a bird's nest?

When Mr. Spencer asserts that "humanity has progressed solely by self-instruction," [5] he either falls into an obvious error or he uses terms in an extraordinary sense. It would be as true to assert that humanity has progressed solely by capitalization. Men capitalize their experiences in labor-saving machines and in proverbs. One generation invents a snare, a trap, or a hook; the next generation is spared the effort of making these inventions, but simply accepts and uses them, and devotes the time and effort thus saved to the making of other inventions. Experience begets wisdom, this wisdom is embodied or capitalized in proverbs, and then these proverbs serve other men for warning and guidance in place of wasteful experience. Humanity has never squandered its time in reinventing and rediscovering. The "genesis of knowledge in the

[5] *Education*, p. 125.

race" takes place through capitalization and discovery, and thus understood, it is quite true that the individual must follow the same course. Mr. Bain is evidently right in declaring that the assumption that the child's education is to be in the main a process of discovery or of rediscovery, is a "bold fiction." In some subjects, as mathematics and physical science, rediscovery is conceivable, but, in the main, impracticable; while in others, as history and literature, it is impossible, if not inconceivable. Mr. Spencer's hypothesis of Nature as the true guide in human education easily runs into the *reductio ad absurdum*. Let us see where this specious hypothesis will land us:

This Nature is simply brute matter or brute force, absolutely divested of feeling, without sympathy and without pity; the teacher should therefore be the personification of brute, unfeeling force.

In her distribution of pains and penalties Nature never distinguishes between innocence and deliberate transgression—the same punishment falls on the infant as on the hardened criminal; the teacher is therefore to take no account of motive, but must regard the fact of transgression only.

Nature makes no distinction between a block of wood that falls from the roof of a house and a child that tumbles from a chamber window—for her use they are merely two pieces of matter, which she treats in the same manner, or, if she makes any distinction at all, she favors the block of wood, life and feeling here being at a discount; children should therefore be manipulated, shaped, and governed, as though they were inert, senseless matter.

There are no gradations in Nature's lessons, she deigns no explanation, she is as silent as a Sphinx; the graded school is therefore unnatural, and the teacher should be merely a stern and silent monitor.

I call attention to these absurdities, not because they are sanctioned by Rousseau and Spencer, but because they show the near limitations of this specious doctrine of Nature. Both these writers set up Nature as a criterion and guide, and they

quote her in a free and easy way as standard authority for certain educational processes. Their argument runs in this wise: "Nature does so and so; therefore we should do so and so." But, evidently, this Nature does some things that no sane or moral man should ever think of doing. Mr. Spencer allows a little child of three or four years to lay hold of hot fire-bars with his little hands, but objects to his playing with an open razor. It is plain, therefore, that Nature is not to be followed at all lengths. Who is to decide how far, or in what cases, we are to follow Nature? Some who have had larger experience in the management of children than Mr. Spencer has probably had, would stop short of the fire-bars and the boiling water. It is a reasonable presumption, therefore, that we are not here dealing with science, but with opinion; and that it is an open question, not only how far we should follow Nature, but whether we should follow her at all; seeing how unnatural she sometimes is and how questionable some of her proceedings are.

Instead of accepting the poetical fiction that Nature (still using the term in the Spencerian sense) is our goddess and our guide, some of us who have not the fear of the new mythology before our eyes would respectfully maintain that this same Nature, in some of her work, should be disinfected, deodorized, and otherwise prevented from doing her worst. Only give her a fair chance, and Nature, in the form of scarlatina, diphtheria, or cholera, will decimate whole villages and cities. In such and all similar cases Nature is a remorseless, relentless fury, who is to be pursued, captured, and thrown headlong into the sea and miserably drowned. In other terms, and dropping figure, the joint work of Christianity, science, and civilization, is to subdue Nature, to make her man's servant rather than man's master, to make her minister to his joys rather than to his sorrows. There is to be a new earth, rescued from Nature and transformed by human art, and it is to be peopled by a race re-created by education and the Gospel; and throughout this secular process the dominant force is to be the human intelligence and the human will. The

Nature that we are to follow is "Nature humanized," or "Nature informed with humanity," to adopt the happy phrase of Richard Grant White.

So far, the treatment of my theme has been negative, in the main; the purpose being to show that the hypothesis of Nature as a faultless paragon is subject to grave limitations; that this general doctrine is very far from being safe and wholesome; and that like all other fads it seizes upon a fraction of a truth, fancies that it is the whole truth, and then proclaims the new marvel to the world with a cackling of delight.

I will now venture on a more positive treatment of this theme, and putting entirely aside whatever is mystical or mythical, will try to state in plain prose some of the things that seem to be implied in education according to Nature. I hope my hearers will do me the favor to remember that my purpose in this discussion is not controversy, but the discovery of truth. I aim at nothing more than interpretation. The writers who invoke Nature so persistently and so freely make no attempt whatever to define the term; they leave their readers to interpret the word for themselves.

In dealing with the precept "Follow Nature" the task of the interpreter is twofold: (1) to determine what Nature is and what she does; and (2) then to determine whether it is wise to follow her in the cases stated. At this stage of educational science it is high time to disregard fiction, myth, and personification, and to give to this vague term an articulate meaning. My interpretation of the term Nature may not be the correct one, but it is an honest effort to reach the truth. Those who reject any given interpretation owe it to the cause they are attempting to serve, to state in plain terms their own interpretation.

The one word that most nearly interprets Nature, as it seems to me, is experience; and to follow Nature is to make experience the sole or the main source of our knowledge and discipline. It is usually said that there are two sources of knowledge, experience and language; but the precept "Follow

Nature" forbids the intervention of language as a source of knowledge, and makes the process of learning a course in personal experience. Experimental knowledge, it is claimed, is the only real knowledge; all we truly know is included within the circle of our personal experiences, of our sensations and of the inferences we draw from them. Rousseau sequesters Émile, so far as possible, from the society of men, in order that he may be tutored by Nature, that is, by experience. Instead of the mother, Mr. Spencer makes the candle-flame, the fire-bars, and boiling water the teachers of the child. Primitive man, we are told, had no teacher but experience; the successive generations of men have gained their knowledge in the same way; experience is therefore the typical process of human education, the only royal road to learning.

A few tests applied to this theory would seem to show its general unsoundness: Is history knowledge? On the hypothesis that the real test of knowledge is experience, there can be no such thing as historical knowledge, for we cannot be brought into personal relations with the events which have given rise to history. This high doctrine has been maintained on the floor of this Association.[6]

Is our knowledge of geography limited to what we have learned by travel? May we be said to know anything of the countries we have never visited? I once had a pupil who was a thorough convert to the Spencerian doctrine that there could be no knowledge where there was no personal experience. "Have you ever been abroad?" I asked. "No." "Then do you know that there is such a city as London?" "No." "How would you gain this knowledge?" "I would go there." "How would you know when you reached there?" So authority confronts us on every hand,—the new theory broke down at this point.

Again, on this hypothesis, what is the function of books? Possibly Mr. Spencer may have learned all his philosophy from his own observations and reflections; but on his own hypothesis why does he write so many books for other men

[6] At the meeting in Madison, Wis., in 1884, by Hon. John W. Dickinson.

to read? Scholarship and culture have always meant and will ever mean a loving devotion to good books.

I venture to say that the following statements are substantially true:

The process we call civilization is the triumph of art over Nature, and is a mark of human progress. Men will not renounce the essential concomitants of civilization and revert to a state of nature in pursuit of happiness or moral good. The men of each new generation will start forward from the vantage ground secured for them by their predecessors on the earth. They will accept and use the labor-saving machines which they inherit from the past, and without wasting time and strength in the effort to reinvent, they will capitalize their own experience and wisdom in some other or better labor-saving devices.

The knowledge gained by experience and experiment is capitalized and transmitted in books, and the great mass of men in each new generation will gain their knowledge by the interpretation of the books left by the wise and the good. The pretense lately set up that students in science are to gain their knowledge inductively, by personal research in the way of rediscovery, is a shallow fad. It would be just as reputable to counsel men to construct their own almanacs. Try to imagine a class of even university students attempting to rediscover the atomic weight of chlorine, or even the specific gravity of iron! If we commit ourselves to such folly at all, why not be radically and consistently foolish, and set about reinventing the apparatus of the modern laboratory? Students should certainly have some training in physical manipulation and experiment, but not on the pretense of rediscovery, but rather as a means of initiation into the processes of modern scientific research. The culminating absurdity of this doctrine of rediscovery is vivisection, which, as practiced in all ordinary cases, is nothing less than a crime.

Can virtue, in an intelligible sense, be capitalized, transmitted, and taught, so that in the moral life each generation may start from a higher vantage ground; or must we be

remanded to an experimental ethics as our reformers would remand us to experimental science? This question cannot be argued at this time, but a little reflection will show that the world can grow better only on the hypothesis that the attainment of virtue is made somewhat easier for each succeeding generation. In other words, virtue can be taught; each child is not to construct a code of ethics out of his own experiences, but is to accept the highest code of ethics that humanity has bequeathed to him.

Interpreting nature in the sense of experience, or contact with environment, which is the prevailing sense in which Rousseau and Spencer use this term, and speaking only for myself, I find but little that is really helpful in the stock precept "Follow Nature," save this: It serves to keep alive the fact that learners are ever in danger of mistaking words for things, and so guards us against an education that is purely "livresque," as it has been styled. Thomas Hobbes uttered the same caution when he declared that "words are wise men's counters, but the money of fools."

I find much more help in a side-conception which appears in the *Émile* as a sort of undertone,—that there is an imminent tendency in civilization toward a distracting and unwholesome complexity, and that the need of the age is a return to simplicity. Rousseau's illustration of his meaning is very happy. Speaking of teaching children to read, he says: "We no longer know how to be simple in anything; look at the machines we invent for teaching children to read—cabinets, charts, and what not—all useless lumber; we do everything save the one thing essential: *creating in the child a desire to read;* do this, and all methods are good." As I interpret this phrase of Rousseau's educational philosophy, it is this: Follow main routes, abandon bypaths; strike at creative motives; occupy strategic or dominating positions; educate as artists paint—begin with broad strokes, leaving details for after consideration; imitate the unity of Nature, and instead of reducing a child to fractions treat him as an integer, making his education wholesome and humane.

The stress we put on training is the symptom of a general unsoundness. A trained horse or a trained pig is not a normal and wholesome horse or pig, but an animal artificially shaped and fashioned into a fraction or fragment. A thin glaze of bookkeeping converts an ignorant boy into a writing or adding machine, and unfits him for the functions of a man proper. Teachers are now being trained rather than educated, and these fractions tend to perpetuate fragments. The one great merit of the kindergarten is that it keeps children whole and allows them to grow by an organic process into symmetrical units. The danger of the graded school, and even of the college, is stratification,—the deposition of knowledge in layers by specialists; and the remedy for this and kindred evils is a return to a wholesome simplicity of nurture, to an education according to Nature.

In a more specific sense, we follow Nature when we adapt our instruction to the organic mode of the mind's activities. The mind is an organism having its own predetermined mode of activity. This constitutes its nature; and when we respect this order of procedure, in the presentation of knowledge, we may with scientific accuracy be said to follow Nature. When the mind works naturally, that is, in accord with the laws of its organization, it proceeds from aggregates to parts, from the vague to the definite, and, in childhood, from the concrete to the abstract; and the teacher follows Nature when he allows the mind to elaborate its knowledge in this order.

In conclusion, I venture to offer this bit of advice to those who are trying to make of their teaching a rational art: in your thinking and writing never allow yourself to personify the term Nature, but leave the mythologist, the poet, and the novelist, in sole possession of this deity.

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IV

THE LAWS OF MENTAL CONGRUENCE AND ENERGY APPLIED TO SOME PEDAGOGICAL PROBLEMS[1]

The nouns congruence and congruity, and the adjectives congruent and congruous, are derived from the Latin verb *congruere*, which means to come together with something, and so to agree. The nouns mean suitableness, appropriateness, consistency, agreement, coincidence, correspondence, fitness, harmony, and their adjectives mean pertaining to or having this quality. The words have respect to relations, and they are favorites with those philosophers who place virtue in the fitness of things. For men to render obedience to God, or for a son to honor his father, is said to be congruous to the light of reason. Incongruence and incongruous are the negatives of these words. Congruence may be affirmed of physical things alone, or of psychic things alone, or of physical and psychic things taken together, The element of time is involved. Congruence is simultaneous or successive. If successive activities are congruous, the first flows naturally into the second; they blend. The first leaves the body or the mind, as the case may be, in a suitable frame to enter upon the second. Particular attention may be directed to this point, because the argument of this paper will turn in large part upon the relations of successive psychic states.

I *Bodily activities as congruous or incongruous*—It is obvious that congruence must be affirmed of some physical activities, incongruence of others. No reference is here made to organic functions. Walking is a good preparation for leaping, wielding a hammer for shoving a plane. But violent

[1] A report presented to the National Council of Education at Denver, Colo., July 8, 1895, by the Committee on Pedagogics.

exercise disqualifies the muscles or nerves for any activity that requires careful handling or delicate touch. The surgeon could not qualify himself for a difficult operation by first engaging in the vigorous exercises of the gymnasium, nor the painter fit himself for putting the last touches to a fine picture by crushing stones with a sledge. No more does the skillful teacher place the writing or the drawing lesson just after the school recess. We need not dwell upon the laws that underlie these facts further than to say that congruent exercises appear to involve, in whole or part, similar co-ordinations of the nerves and muscles and similar physical tones.

II *Physiological and psychological states as congruous or incongruous*—That certain correlations exist between the body and the mind is too plain to be disputed; also certain oppositions or antagonisms. Mental power and tone depend upon physical power and tone, while states of mind influence states of body. Repose of body conduces to reflection, meditation, or musing. Strong physical exercise tends to exclude mental exercise. Still there are obvious limits to these effects. The Greeks laid stress upon maintaining balance or proportion between the body and the soul, but their great athletes and their great writers or orators were different classes of persons. Aristotle has left two striking testimonies relative to this subject. "The evil of excessive training in early years is strikingly proved by the example of the Olympic victors; for not more than two or three of them have gained a prize both as boys and as men. Their early training and severe gymnastic exercises exhausted their constitutions." "Men ought not to labor at the same time with their minds and with their bodies, for the two kinds of labor are opposed to one another; the labor of the body impedes the mind, and the labor of the mind the body."[1] This is at least measurably true, and the truth has important pedagogical applications.

III *The primary psychic elements as congruous or incongruous*—Cognition, feeling, and will are present in every fully developed state of consciousness. Dr. Dewey calls them "the three aspects which every consciousness presents, accord-

[1] *The politics* (Jowett's translation), VIII: 4.

ing to the light in which it is considered; whether as giving information, as affecting the self in a painful or pleasurable way, or as manifesting an activity of self. But there is still another connection. Just as in the organic body, the process of digestion cannot go on without that of circulation, and both require respiration and nerve action, which in turn are dependent upon the other processes, so, in the organic mind, knowledge is not possible without feeling and will, and neither of these without the other."[1] This is very well as far as it goes. It does not, of course, tell us whether the three elements are all present in the first, or simplest, state of consciousness.

The further relations of the three elements are of the greatest interest, and must be considered more carefully. Two facts are very observable. One is that up to a certain point the three elements vary directly; the other is that beyond this point they vary inversely. Until the mental current reaches a given height, cognition, feeling, and will swell together. That point reached, any one of the three must swell at the cost of one or both the others. Höffding, who does not, however, generalize them into a single law, presents these interesting facts:

"Self-observation reveals at most only an approximation to a state in which all cognitive elements have vanished. Such an approximation is reached the more the strength of the feeling element increases. Cognition and feeling must stand in inverse relation to one another; the more strongly the one is manifested the less the strength at the command of the other. An overwhelming joy or sorrow may drive out all ideation, all recollection; but an ecstatic condition of this kind stands on the margin of consciousness. . . . .

"It is only in the course of psychological development that differentiation between feeling and will makes its appearance. There comes to be an ever greater contrast between the two ways in which inner movement finds a vent. The psychological importance of the law of persistence of energy is here seen plainly; for the more energy an individual expends on

[1] *Psychology*, pp. 17–18.

the one kind of reaction the less can be expended on the other. This truth is strikingly illustrated in Saxo's well-known tale of the different effect which the news of the murder of Ragner Lodbrog produced on his sons. He in whom the emotion was weakest has the greatest energy for action." [4]

But of the writers on this subject whom I have consulted, Dr. Sully does it the fullest justice. Two paragraphs may be quoted:

"These three kinds of mental state are, in general, clearly marked off from one another. A child in a state of strong emotional excitement contrasts with a child calmly thinking about something, or another child exerting his active powers in doing something. If we take any one of these aspects of mind in a well-marked form, we see that it is opposed to the other aspects. Thus, strong feeling is opposed to and precludes at the time calm thinking (recollecting, reasoning), as well as regulated action (will). Similarly, the intellectual state of remembering or reasoning is opposed to feeling or to doing. The mind cannot exhibit each kind of phenomenon in a marked degree at the same time.

"This opposition may be seen in another way. If we compare not different states of the same mind, but different minds as a whole, we often find now one kind of mental state or operation, now another, in the ascendant. Minds marked by much feeling (sensitive, emotional natures) commonly manifest less of the intellectual and volitional aspects or properties. Similarly, minds of a high degree of intellectual capability (inquiring or inquisitive minds), or of much active endowment (active minds), are, as a rule, relatively weak in the other kinds of endowment." [5]

From the premises before us two or three important pedagogical rules are derived. One is that a gentle glow or wave of pleasurable feeling should play over the mind of the individual pupil and through the school. The intellect thrives best in a suitable emotional climate. Courage, hopefulness,

[4] *Outlines of psychology* (translated by Mary E. Lowndes), pp. 98, 99.

[5] *Outlines of psychology*, pp. 21, 22.

appreciation, rather than their opposites, should temper the atmosphere of the schoolroom. Optimism is more congenial to the normal mind than pessimism. Another rule is that pupils should be protected against strongly excited feeling, no matter whether the feeling is their own or that of another, into which they enter through sympathy. The wheels of the intellect, so to speak, will not revolve freely in a flood of turbulent emotion. No gusts of anger, cyclones of passion, or waves of sympathetic impulse in the school! Especially is the feeling that the teacher is unjust very harmful to the pupil. No immediate reference is here made to morals. "Nothing retards the acquirement of the power of directing the intellectual processes," says Dr. Carpenter, in a striking passage, "so much as the emotional disturbance which the feeling of injustice provokes."[6] Again, genuine interest may reach too high a pitch. When Sir Isaac Newton saw that the train of reasoning which he had so long been following would establish his working hypothesis, his emotions would not allow him to continue, and he was obliged to hand his manuscripts over to a friend to complete the work.

IV *The intellectual activities as congruous and incongruous* —Here we reach the application of the law of congruity to education that, considered from the point of view of the school, is the most important of all. So much will be admitted by those at least who regard teaching as the main function of the school. We must, therefore, proceed more slowly with this division of the subject. Still, it is not proposed to deal in detail with the nature or the relations of the cognitive elements. These subjects are treated in every textbook of psychology; and, although much of the treatment may be false, the commonly accepted views will answer the present purpose.

1. Here, as in the case of cognition, feeling, and will, we observe both mutual opposition and reciprocal aid. Up to a certain point cognitive elements grow together; beyond that point, the greater the energy expended on one kind of reaction the less can be expended on another kind. The com-

[6] *Mental physiology*, pp. 134, 135.

plete action of perception involves memory; but energetic observation is at the expense of memory, while intense memory, on the other hand, tends to withdraw attention from surrounding objects. The imagination stimulates the thought processes until a point is reached where it assumes the ascendant and reflection retires into the background. Imagination and reflection, both in an excited state, cannot dwell together. Sense-perception furnishes the logical faculties needed materials; still, become too obtrusive, sense-perception is fatal to thought. Men or peoples who live in the senses do not live in the reason, and *vice versa*.

This point is pedagogically so important that we may well dwell upon it a little longer. The pedagogical realists make the sense-elements of knowledge prominent in the school. Originating as a reaction from excessive devotion to the printed page, the realistic movement has been most fruitful of good results. With it are identified the great names of Comenius and Pestalozzi. To it we are indebted for the enlargement of science-teaching, and the extended use of object-lessons and objective methods of instruction. At the same time, the true limits of realism are soon reached. Knowledge begins with the senses, but does not end with the senses. Properly speaking, a developing mind soon leaves the senses behind. Sensation is but a coarse form of feeling, and is subject to the same law. An excess of sense-elements in the mind smothers the rational elements. A blinding flash of lightning or a deafening peal of thunder arrests the higher mental activities; while less powerful sense-impressions exercise a more lasting, if a less intense effect. The great scientific discoveries have not been made in immediate contact with nature, but in the retirement of the study. Nor is time the only element that is here involved; when immediate contact exists and is vital, nature may overpower the mind. It has been said that the machine may be lost to the mind in its parts, or the picture in the colors that compose it. Equally may the universe be lost in the multitude of the stars. Concentrated attention upon the technic of an art retards the

development of its higher elements. A house-builder is not likely to excel as an architect; the practical elements of the trade exclude the ideal elements that are essential to the profession. On this basis Aristotle's prejudice against useful studies rested, as is evident from the following passage:

"There can be no doubt that children should be taught those useful things which are really necessary, but not all things, for occupations are divided into liberal and illiberal; and to young children should be imparted only such kinds of knowledge as will be useful to them without vulgarizing them. And any occupation, art, or science which makes the body or soul or mind of the freeman less fit for the practice or exercise of virtue, is vulgar; wherefore we call those arts vulgar which tend to deform the body, and likewise all paid employments, for they absorb and degrade the mind."[1]

Abstract thinking—the thinking of relations and unities—which is the highest force of thought, is possible only when the mind has been unsensed or dematerialized. Whether instruction in physics should begin with theory or experiment is a mooted question. Begin where the teacher may, he has not taught the subject until he has taught those logical elements that give it its character. Still more, an excess of brilliant experiments may hinder rather than hasten the work. Experiments are like examples, of which it has been said:

> "Examples may be heaped until they hide
> The rules that they were made to render plain."

2. The practical application of the principles of congruence to teaching involves the selection and grouping of studies. It brings before us the large subject to which the terms correlation, co-ordination, organization, and concentration of studies have been somewhat indiscriminately applied. It is not proposed to discuss these terms in this report, or even the subject itself, save as it involves fundamental principles. But to do even as much as this makes it necessary to state the principal laws relating to mental energy. They are the following:

(*a*) When any stimulus as a sense object, an idea, or a lesson,

[1] *The politics*, VIII: 2.

is applied to the mind, the mind is not at once fully energized, but some time must elapse before it swells to the maximum of power.

(*b*) This maximum of power continues for a time, or, in the language of science, mental energy tends to persist.

(*c*) The maximum cannot, however, be indefinitely maintained. On the contrary, when the mental current reaches what may be called the fatigue point, it begins to fall off in volume, but the fall is less rapid than the previous rise. Still the volume can be temporarily renewed, in part or in whole, by the application of a stronger stimulus.

(*d*) An interruption of the mental current retards the energizing process, or frustrates the reaching of the maximum of power. Such interruption is caused by the introduction of incongruous materials. If the incongruity be of a marked character, the mind will come to a state of rest, or a new current flowing from a new center will be started.

(*e*) Through repetition the energizing process becomes easier and more rapid. Repeated activity in the same direction tends to groove the mind, or, to change the figure, the stream of activity digs out for itself a permanent channel of discharge.

(*f*) Mental power is of two kinds, specific and generic. In other words, the power that is generated in any activity can be fully used again in the same kind of activity, but only partly used in other kinds—the measure of the difference being the relative unlikeness of the two activities.

(*g*) Mental fatigue, like mental power, is also specific or generic. The mind may need rest from a certain kind of activity, or it may need rest from all kinds, or from all energetic kinds.

These psychic laws have their analogues in physical laws. The physiological psychologists find their causes in nerve and brain action, the explanation going back to the familiar functions of waste and repair. Moreover, these laws cannot be stated in quantitative terms. No one can tell, in general, how long it takes fully to energize a mind at a given

time, or how far removed the fatigue point is from the initial point of greatest energy. Very much depends upon age, discipline, physical health, the character of the stimulus, and other circumstances. As a rule, the periods lengthen as the individual passes from childhood to youth and from youth to manhood. That is, a man's mental force is less quickly aroused and mobilized than a child's, and it tends to persist much longer.

3. From the laws of congruence and energy we derive some important rules of teaching. While these are applicable to all grades of teaching, they are particularly important in relation to primary teaching. The principal of these rules may be formulated as follows:

(*a*) Sufficient time must be allowed the pupil for him to collect his energies, to mobilize his forces. Slow and halting recitations tend to dullness of mind, while rapid recitations develop either confusion or shallowness. There must be a certain singleness or isolation of the fact or idea. "The child must be accustomed to give one impression time to take root," says Radestock, "and not follow it immediately by a corresponding action, that it may not pass away with that action into air."[8] The same writer quotes the following from Lazarus with approval: "Deep thinking requires time; it is therefore a great pedagogical mistake if teachers, as is now generally done, urge their pupils to answer rapidly, and praise those who immediately have an answer ready. This causes everything to be lowered to a mere effort of mechanical memory. The pupil should be given time for individual contemplation, for deep and energetic thought labor." This does not imply that lessons are not to be well prepared and subjects well thought out beforehand. When the fullest preparation has been made, there is still opportunity for energetic thought at the time of the recitation.

(*b*) The pupil should be held to the same subject as long as the mental current flows with full volume. To no new subject can all the energy that has been aroused by any activity be transferred, and to some subjects none whatever. Unnecessary

[8] *Habit*, p. 36.

changes from subject to subject, or from lesson to lesson, involve the dissipation and consequent loss of both time and power, the amount of which will depend in great part upon the relative congruity or incongruity of the different subjects or activities. More power can be transferred from Latin to Greek than from French to German. This is Dr. Bain's physiological explanation of the rule laid down: "We know well enough that the nervous currents, when strongly aroused in any direction, tend to persist for some time; in the act of learning, this persistence will count in stamping a new impression; while part of the effect of a lesson must be lost in hurrying without a moment's break to something new, even although the change is of the nature of relief."[9]

(*c*) Advantage should be taken of favoring times to do, or to secure the doing of, certain kinds of work. The more difficult subjects should be pursued by a pupil or student when both body and mind are fresh and vigorous. It is the flood-tide, not the ebb-tide, that brings the great ships up to the dock.

(*d*) Before the pupil reaches the fatigue point, the teacher should permit him either to take up another subject or to drop study for the time altogether. Persistent application on a stream of falling energy involves waste of time and power, and may lead to serious results. To some extent, no doubt, the needed relief can be had through a change of method.

(*e*) Whether the pupil should take up a new study, or drop all study for the time, depends upon the kind of fatigue that has supervened. Diminished power for one activity is not diminished power for all activities. Thus, a pupil who has studied arithmetic or algebra as long as it is profitable to-day, will take up geography or history with interest, and *vice versa*. To a degree studies are like gases, they are vacuums one to another. As a jar that is already filled with hydrogen gas will still hold as much carbolic acid gas as a jar of the same size that is empty, so a pupil that is satisfied for the present with mathematics will pursue literature with interest and profit.

(*f*) The school course of study should be made up with con-

[9] *John Stuart Mill*, p. 23.

stant reference to the psychic laws that have been laid down. Into the question how far psychology and how far environment should control the educational ideal, we need not enter. No one denies that psychology must largely influence the choice of studies, and almost wholly control their co-ordination.

(*g*) The working programme of the school, in particular, should be made up with reference to the same principles.

(*h*) The principle of congruence and its limitations have important applications to elective studies in colleges and universities. In filling out election blanks, it is believed students who are left wholly to themselves often choose studies that make strange bedfellows. Nor is this surprising; the criteria that should govern the choice are considerably subtle and intricate. This topic will come before us again.

The arguments on which the three last rules rest are practically the same. They involve the important subject of concentration. Congruent studies re-enforce one another with respect to both content and mental aptitude. One subject involves other subjects. The physicist must be a mathematician, the Latin scholar must know something of Greek, the historian must be acquainted with politics and political economy. For a time depth and breadth vary directly, after that indirectly. But in the absolute sense a specialist is an impossibility. An astronomer cannot study the moon by itself, or a physiologist the eye. No one object or subject can be understood when taken alone: it is related to other objects, it is a part of the universe. Still, to be effective the mind must be grooved, and this involves the repetition of the same act and of similar acts. Once more, if the practical requirements of the school compel a study to be discontinued before the fatigue point is reached, thus departing from the ideal, then some related subject may be taken up, because more of the power that has been accumulated can be transferred to a related than to an unrelated subject. And still the distance of the fatigue-point must be considered.

4. But congruence alone must not dictate the course of study,

the daily school programme, or the student's elections. Fortunately, there may be power for one subject when there is none for another subject. We have spoken of the mind under the similitude of a stream or current. The fact is, however, that the mind is less like a river from which you may take water for any purpose, than it is like a bank where the total amount of money that is on deposit is divided among many different accounts, and is subject to check by as many different persons. This is due to specialization of powers—to the difference between specific and generic force. The one-study college is, therefore, just as unphilosophical as those schools that break the work hours up into small crumbs of time. Thus the fundamental laws of mental energy, or of interest if you will, impose a veto upon an exaggerated form of concentration.

It is further to be observed that concentration is a relative term, at best. No wise teacher proposes to limit the pupil to a single study or class of exercises. To do so would in reality involve the dogma of formal discipline in its extreme form. Another remark is that concentration in the primary school may be overdone as easily as specialization in the higher school. It has been shown time and again that the child may be overtaught certain subjects. His impressible mind may be so deeply and narrowly grooved that it can never be broadly cultivated. It becomes indurated, as it were. This result may be due in part to the intensity of the activity, but it is more due to its persistence. As the mind matures, there is less and less need of caution on this point. The pupil gets farther and farther away from the mechanical elements of knowledge, becomes more and more occupied with the higher logical elements, and so is less responsive to narrowing influences. While the child's activities must be duly limited, his full development still calls for a profusion of educational material.

At this point some very practical questions confront the teacher and superintendent. How long should a pupil be kept at work on the same subject? How much work should he do in one school-day? How frequently should he change from one subject to another? How many studies should he have?

No man can answer these questions in formulæ; the teacher or superintendent must answer them as they arise, and to do so he will find his best observation and judgment seriously taxed. It may well be doubted whether, measurably, the common schools are not now sacrificing the best results to swollen programmes and short exercises. The question is one that the superintendent should study with a transcript of the facts that have been stated in one hand, and his course of study and time-table in the other. There is no reasonable doubt that much evil in the school that is now charged to the account of overwork, should rather be charged to work done in the wrong way.

5. The psychic facts to which the names of congruence and energy have been given, demand fuller investigation than they have hitherto received. It is well known that school programmes, both in respect to the co-ordination of subjects and the length of exercises, commonly rest upon a rude empirical basis. The factors that control those who make them appear to be the necessities of the school, real or supposed, tradition, and individual experience. This empiricism is not surprising, considering the meager attention that psychologists and pedagogists have given to the principles that underlie good school programmes. Very little attention has been given to the time elements involved in psychic energy, as applied to school exercises. When three heavy subjects appear upon the programme for the day—subjects demanding the fixation of the attention—you will not indeed commonly find them all crowded into the same session; but that is about as far as the attempt to accommodate the work to the pupil's ability in this regard has been carried. Such delicate questions as these occur: How much time elapses between the application of different stimuli to the child mind at different ages, and the development of maximum psychic power? How long is the interval between such maximum and the fatigue point? In respect to the swelling of the mental current to its full volume, and in respect to its persistence, how much depends upon the pupil's age? How much upon the peculiar stimuli at different ages?

And how much upon the teacher's skill? It is easy to translate these questions into the practical interests of the school. They cannot be answered without much careful observation and collaboration of facts. The whole subject should enlist the serious attention of students of child study, both under its physiological and psychological aspects, and it is earnestly recommended to their attention.

6. The correlation of the teacher and the text-book, if one be used, demands something more than passing attention. Dr. Bain has said that undoubtedly the best of all ways to learn anything is to have a competent teacher "dole out a fixed quantity of matter every day, just sufficient to be taken in and no more; the pupils to apply themselves to the matter so imparted, and to nothing else. The singleness of aim is favorable, he urges, to the greatest rapidity of acquirement; defects should be left out of account until one thread of ideas is firmly set in the mind. Still he admits that not unfrequently, and not improperly, the teacher has a text-book to aid him in his work. "To make this a help and not a hindrance demands the greatest delicacy, since the pupil must be kept in one single line of thought, and never be required to comprehend upon the same point conflicting or varying statements. Even the footnotes may have to be disregarded in the first instance, since they act like a second author, and so keep up an irritating friction." [10]

Nothing else is so essential to successful elementary teaching as unity or congruence of subject matter. Dr. Bain does not exaggerate the value of the "one thread of ideas," or the "one single line of thought." His scruple about footnotes even is often justified. These more definite rules will determine the teacher's general relations to the text-book.

(*a*) If the book is the main source of instruction, the teacher should teach the book; that is, the matter of the book. If footnotes tend to confuse, what shall be said of the teacher who takes an independent line from the beginning? No wise teacher certainly would be so absurd as to give a pupil who is just beginning a new subject two text-books. A good Sunday-

[10] *Practical essays*, pp. 218–219.

school teacher, dealing with the life of Jesus in a primary class, would not try to follow all the Gospels, or even two of them, at the same time; rather than do that, it would be better to select his material here and there and to blend them in a new gospel of his own. The teacher may teach something more or something less than the book teaches on a single point, but nothing different or contradictory.

(*b*) The teacher should also follow the methods of presentation that the book employs. Nothing could be more absurd than for a teacher who has assigned to a class a book lesson that is presented inductively, to go ahead and teach it deductively.

(*c*) The teacher should study to make the first presentation of a lesson successful. If two or more presentations are required, besides the loss of time, the mind is left in a littered-up condition that is confusing. This is the reason why it is often more difficult to teach a subject well to a pupil to whom it has been imperfectly taught, than to a person to whom it is wholly unknown.

(*d*) If the subject-matter of the book or of a single lesson is radically bad, or the method decidedly faulty, the book or lesson should be laid aside altogether. If only certain portions are objectionable, or certain methods of presentation, the teacher should not assign these to be studied, but should teach such subjects *de novo*. This observation assumes that the teacher is able to do so.

(*e*) The wise teacher will not present a subject in more than one way, unless the first way has failed. It is folly to explain the division of a fraction by a fraction in a second way, if the first explanation has been understood. The same remark will apply to casting interest and to many other subjects. It is well enough for the author of an arithmetic to give two or more methods of performing these operations, thus giving the teacher an option; but the teacher should choose the method which he thinks best adapted to his purpose, and then adhere to it. At the stage of teaching now supposed, never give more than one definition or rule on a

single point. Superfluous illustrations also not only do no good, but they do positive harm, begetting confusion worse confounded.

It will be understood that these rules relative to the use of the text-book apply to the early stages in teaching particularly, and that they would require very important modifications if they are to be applied to the advanced, rational, or critical stage of education. Narrow teaching must come before broad teaching. In time the pupil, if rightly handled, will get out of his single line of thought; will be able to deal with subjects; can criticise and weigh different definitions, contradictory views and rules, and opposing opinions; can use a variety of books, compare authorities, and employ different methods of procedure. Thus Dr. Bain recommends that in geometry the pupil should be held strictly to Euclid until he has become thoroughly at home on the main ideas and leading propositions; then he is safe in dipping into other manuals and comparing the differences of treatment, and in widening his knowledge by additional theorems and by various modes of demonstration. But the time when all this can be done will not be hastened by pushing the pupil forward prematurely. The teacher who inundates the pupil with all kinds of things is the pupil's worst enemy, unless, indeed, it be the teacher who keeps him too long and too intensely harping on the same string. It is only the knowledge that really energizes the mind which is valuable.

7. It has already been remarked that the laws of congruity and energy bear on the college or university student's choice of electives. How many subjects should such a student have at the same time, and what should be their relations? Should he scatter his energies over a considerable field, or concentrate them on a small one?

Professor Trowbridge, discussing some years ago the subject of economy in college work, urged that the Harvard student should study two subjects for at least three months, and two subjects only; one of these should be a hard subject, giving plenty of opportunity for application, while the other might

be a comparatively light subject that could serve as a mental rest through the change which it afforded. At the end of three months two other subjects might be taken up, and the first ones be relinquished for a time and so on to the end of the course. After observing that some studies are so nearly related that intellectual effort in one is of service to another while others are not: that Latin and Greek, philosophy and history, political economy and history, are examples of the one class, while German and French, chemistry or physics and philosophy, are examples of the other, he examined the nineteen or twenty subjects which formed in the main the elective curriculum of Harvard University. He found that the division of subjects could be reduced to twelve by grouping together the subjects which aid each other, as follows: Latin and Greek; French and French history; German and German history; political economy and history; chemistry alone, or in conjunction with English; Spanish and Spanish history; philosophy and history; physics alone; Semitics and ancient history; fine arts and music with English, or fine arts and music as a let-up with any of the severer studies; mathematics and English; romance philology and its suitable language. Having twelve subjects, the student could pursue three of these in the nine months of each college year, and in four years he could accomplish the whole twelve, provided, of course, he wished to take all the subjects enumerated."[11]

This scheme has been introduced mainly for the sake of illustration. In criticising it we should remember that at Harvard University all studies are elective, save only a modicum of English and physics. Although propounded for a laudable purpose, the scheme is open to one or more serious objections. Within the successive three months' periods, study is certainly over-specialized, and particularly in the first college years. The common Freshman will not, and cannot, work up his available power on one main line of study. The laws of mental energy are violated. The range of interests is too narrow. In the later years of the course this objection would be less serious. Other important questions, as whether the time

[11] *Atlantic Monthly*, November, 1888, pp. 671–672.

allotted would be sufficient for the leading subjects, occur, but they need not be considered. This branch of the subject is dismissed with the remark that college electives call for a fuller examination than they have yet received, particularly in respect to the principles that shall underrun electives and practical administration. There is good reason to think that in some quarters, at least, *laissez faire* has been carried too far.

8. The last topic to be mentioned is graduate study. While there is not, or at least should not be, a chasm between undergraduate and graduate work, still there are palpable differences of ideal and method involved. The first period looks to general cultivation. The second period looks to special cultivation. The undergraduate need not lay equal stress upon all the studies that he pursues; he may emphasize some more and some less; but he should not sacrifice general culture to Greek scholarship, Latin scholarship, mathematical scholarship, or any other kind of special scholarship. The graduate student, on the other hand, should go much farther on the road to specialization, and particularly the candidate for the doctor's degree. But even here specialization may be overdone. It is not desirable that the student should confine himself for three years to a special line of study. The first objection to such a course is that it is overgrooving the mind at the time of life supposed. Even the graduate student should not lose sight of general cultivation, and fall into stark professionalism. But secondly, a single study will not absorb to advantage the student's power. It will be carried on in derogation of the law of specific and generic fatigue. One brain tract will be overworked, while others are neglected. If the professional man needs a let-up, or an avocation, to keep his mind out of the ensnaring groove, still more the student who is yet lingering in the schools.

How many subjects then should the graduate student have? The answer will depend somewhat upon the student himself, as well as upon other considerations. As a rule, there should be at least two distinct lines of work, one of which may be heavy, and one light. The first may include different sub-

jects chosen with reference to congruity, as Greek literature and Greek history; Latin literature and Roman history; but there should certainly be a second distinct line of work, separate and apart from the first one, also made up with regard to congruency, that will at once cultivate breadth, and also consume time and power that the main subject cannot appropriate.

At this point a cautionary remark may be dropped. It is a mistake to suppose that subjects are congruous, merely because they bear the same name in part. Congruity is determined by elements and not by words. For example, how much have Greek literature and Greek antiquities, or Latin literature and Roman Antiquities in common? Certainly less than some enthusiastic scholars are wont to assume.

It will no doubt be said that this report is conservative on the subject of specialization. This is no accident. There is in the opinion of the committee good reason for reconsidering the relations of education and erudition. Professor Davidson says it is the failure to draw this necessary distinction that is misleading our universities into the error of allowing students to "elect" specialties before they have completed the cycle of education; the result of which is that we have few men of thorough education or of broad and comprehensive views.[12]

Professor Butcher, contending for the unity of learning, declares that it is at present endangered by disintegrating tendencies. "Conceive, if you can," are his words, "a world of specialists, in which each man's vision and labor are concentrated on some microscopic point in the field of human activity, and the very idea of a political and social organism disappears. There is a point at which the subdivision of labor in the intellectual sphere must be checked, and some unifying principle introduced, if we are to retain any rational conception of man, or of the world, or of human life." [13]

And finally, Professor Paulsen sounds a note of warning from the greatest of the German universities. Pleading for the unity of the university, he speaks of the danger of disin-

[12] *The Education of the Greek People*, p. 23.
[13] *Some Aspects of the Greek Genius*, pp. 209–210.

tegration through the diminished influence of the faculty of arts. "Of course," he says, "there is no possibility of retrogression in the division of labor, upon which depend the mighty advances of scientific research. We are called upon, however, to oppose the spirit of 'specialism,' of over-narrow self-confinement and small-souled satisfaction with one's self; and everyone who belongs to a university is likewise called upon to help along the opposition." Dr. Paulsen suggests several remedies, the principal one of which is the maintenance of the old conception of liberal culture. "In particular, the tendency toward generalization of study, the philosophical sense which ever stands ready to turn the details to good account in the service of the ultimate and highest insight, must always find its proper home in the faculty of philosophy. Herein may be found a peculiarly appropriate field for 'public' lectures; to present to a wider circle of hearers, to the disciples of all related branches of learning, whatever problems and results of general interest are included in a special subject." [14]

The purpose of this report may now be briefly restated. It is to apply the law of mental congruence as limited by the laws of mental energy to some important pedagogical problems, as the fabrication of a course of study, the making up of a working programme for a school, the choice of college electives, and the whole subject of graduate study. Congruence means the meeting or bringing together of things that are consonant or related; and as applied to the problems enumerated it looks to the deepening, broadening, and strengthening of study and teaching by co-ordinating those studies and elements of studies that by their nature tend to support and re-enforce one another. It is hoped that the report may prove useful as a basis for further study.

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[14] *The German Universities* (translated by E. D. Perry), p. 234.

V

THE RURAL SCHOOL PROBLEM[1]

This report has reference only to questions which concern schools in the rural districts and the smaller villages, in which no attempt is made at grading the pupils. The aim has been to make it strictly a business paper, dealing with facts and with theories which are both practicable and of immediate importance. Early in the spring your committee sent to each State superintendent a circular asking for information concerning revenues, organization, and preparation of teachers for ungraded schools. The plan of supervision, attendance, and the course of study were included as incidental. Replies were received from twenty-five States, viz: Iowa, Illinois, Indiana, Ohio, New York, South Carolina, Florida, California, Nevada, Maine, Kentucky, Texas, Minnesota, Missouri, Michigan, Rhode Island, New Jersey, Nebraska, Mississippi, Delaware, Massachusetts, Montana, Pennsylvania, Virginia, and Wisconsin. In addition a large number of State reports have been consulted as furnishing desirable information. The information thus gained is embodied in the report in the following order of subjects: revenues and distribution of the same; organization of schools; supply of teachers.

REVENUES

The school funds are derived mainly from three sources, namely: permanent or invested funds, State tax, and local taxes imposed upon towns or districts by vote of the inhabitants. Local taxes are imposed in each of the forty-nine States and territories, including the District of Columbia; thirty-nine have what is termed a permanent school fund, the

[1] A report presented to the National Council of Education at Denver, Colo., July 5, 1895, by the Committee on State School Systems.

interest of which is distributed in support of the schools, but the principal to remain inviolate. Thirty-one supplement the proceeds of this fund by State tax. Ten have no permanent school fund; seven of these support their schools by State tax alone; and three by local tax.

In preference to any attempt at tabulation we have made extracts from answers received to the circular, and from State reports, as showing the trend of opinion in the different States.

It will be noticed that while the answers and suggestions differ in accordance with the civil organization of different States, there is substantial accord of sentiment in favor of a change in the method of taxation; and that school district taxation especially meets with little favor. These quotations could be largely increased, if necessary, but the length of this paper will not admit of it. They look to some way of obtaining a remedy for the gross inequality which exists not between the city and the country schools, but between the ungraded schools in different districts of the same township.

The quotations are as follows:

Kentucky—As revenue to pay teachers and superintendents, we would prefer county taxation after, and as supplemental to, State taxation.

Missouri—Revenues for the support of the ungraded schools are derived chiefly by a direct tax levied only by each district. I prefer a township tax.

Mississippi—I believe in a mixed revenue system; the State providing a certain proportion of the money necessary to maintain schools and distributing it to the county, township, or district, as the case may be, upon the basis of educable children. This is to be supplemented by a county tax distributed to the townships or districts, on the basis of educable children; the townships or districts being permitted to levy such additional tax as they may see fit.

Texas—The revenues for the support of the ungraded schools derived from local sources are very small. I should

very much prefer a good, liberal, county school tax, to any other means of local support.

Florida—I would prefer a State levy, with county option to increase it.

Nevada—I prefer the county tax.

Maine—I prefer a tax raised upon the entire township.

Montana—Revenue is raised by county taxation. I prefer this method.

Pennsylvania—I incline to the opinion that a levy by the county would be more equable. Some townships in this State levy no tax. Others levy the maximum limit allowed by the law, namely, thirteen mills for building purposes, and thirteen mills for maintenance.

Indiana—We can make a levy anywhere from one to thirty-five cents on each one hundred dollars and may go as high as fifty cents on the polls. We like the township system in this State because it is so much cheaper.

Wisconsin—The revenues for the support of the ungraded schools are raised in part by the district, part by the county upon different townships, and in part by the State. It would seem more equable if raised by the township instead of the district.

South Dakota—Under our constitution we cannot have State uniformity of school taxation, but for school purposes we can provide for county tax levies that shall relieve the weak districts from the greater part of their burdens. This would be much better than our present method of taxation, under which the local school tax in some districts has been, at times, as high as twenty mills, while in other districts having equally good school privileges, the levy for the same years has been only five mills or less.

Massachusetts—The Massachusetts Teachers' Association resolved that, for the purpose of enabling the poorer towns of the commonwealth to have the continuous service of trained teachers, adequate assistance should be afforded by the State, and for this purpose an enlargement of the State school fund should be made. Our revenues are wholly from town and

State, principally from town tax. The low valuation of small towns makes it desirable to have a larger contribution from the State.

Minnesota—The taxation by districts is, in the highest degree, unequal, and exceedingly burdensome to the smaller and weaker ones. In some the tax is one mill on the dollar, while in others it reaches twenty-nine or thirty. The districts that really need the best schools have the poorest, the school year is the shortest, and the poverty-stricken inhabitants actually pay the highest tax.

Wisconsin Report, 1893-94—When taxation is made equal throughout the townships, the smaller districts will demand equal consideration with the larger ones in the selection of teachers and in the equipment of the schoolhouses.

Washington—In my judgment, if the policy is to be continued of allowing the county commissioners to levy the school tax, they should be compelled to levy such a tax as will produce a specified amount for each child of school age in the county, and that amount should be such as, with the State apportionment, would provide for each district an ample fund for a reasonable length of time during the year.

Vermont—If the town as a social unit provides the major part of the revenue for the public schools by an equal taxation, it should also disburse such revenue. It is a fallacy to think that equalization of taxes and the district system are compatible.

The spirit of our institutions is that of equality before the law. A system of schools which does not provide school facilities to all children within its limits is not an American system. To put this in different words: an American system of schools should seek so to equalize the burden of taxation that weak and impoverished districts, with a low valuation, should still be able to maintain a school equal in length of term, or in its equipment, to other schools of the same grade in that township or county.

Many excellent reasons can be advanced why the State

should bear the entire burden of taxation necessary to the purpose of common-school education. These reasons are, however, more than counterbalanced by the objection that it would remove the schools too far from the people, and would diminish the interest which they ought to have in providing means necessary to the rightful instruction of their children. It is the policy of our government to impress upon the people the fact that they are the government, and that everything which tends to strength and permanence comes from their united and intelligent action. While we believe that it is right that the State should provide a generous amount, either by a tax of a certain number of mills on each dollar of valuation, or by a certain fixed sum in the aggregate, we also believe that local taxation is necessary to the healthful growth and prosperity of the schools. The question is, What should be the unit of taxation? Your committee are unanimous in the opinion that the system of district taxation, in use in many States, is both unjust and vicious. The argument is founded upon facts. Wherever there is a sparsely inhabited district, or one in which the valuation is low, the school interests suffer for want of sufficient support. Thus in one district the children must put up with a cheap, incompetent teacher, and with six months' school, while, across an imaginary line, children have the advantages of a good teacher, and of nine months' schooling. This is not in accordance with the spirit of free schools. It is true that the same discrepancies may exist to a diminished extent between different townships, and hence there has arisen the thought that the county is probably the best unit of taxation. This question must be settled very largely by the civil organization of the State, and by the character of its population. In the older States, where the population has some degree of permanency, and where the township organization has a clearly defined relation to the State, probably the township furnishes the best unit. On the other hand, in the newer States, sparsely populated, or in States in which the population is largely transitory, or engaged in occupations which do not encourage the owning of

homes, the best unit is the county. If the point is raised that it is unjust thus to tax the wealthier portions of a county or township to support schools from which they can derive no benefit, the only answer is that we not only educate the child at the public expense for the child's sake, but also for the sake of the civilization in which he is to live. The State as a State has an immediate interest in the future of every child who is to become a citizen. We reach these conclusions, then: that the unit should be the county or the township, and that the law should be mandatory, compelling the levying of an amount as a minimum, which, added to the revenue derived from the State, would furnish reasonable school facilities to every child living upon that territory. This, however, should not prevent any community from imposing additional taxes upon themselves if facilities of a higher order are desired.

The ungraded schools need this protection. They are suffering from low wages, short terms, and incompetent teachers. The question of insufficient finances is at the foundation of the trouble. We have solved one equation of the problem when we have adopted the most equable and acceptable method of supplying funds.

DISTRIBUTION OF REVENUES

A question of equal importance presents itself in the methods of distributing revenues. In most of the States the distribution is based upon the number of children of school age in the township or district. This offers the temptation to swell the number included in the school census to its utmost limit in order to obtain a larger share of money from the State funds. The injustice of it is more clearly seen in the fact that the number of residents between certain ages furnishes no criterion of the actual school necessities of the district. It is as far out of the way as it would be to base the distribution of school funds upon the assessed valuation of the territory in question, or upon the number of people of all ages.

These two points are to be kept in view. The funds must be distributed so as to equalize, as far as possible, school privi-

leges and at the same time stimulate the community to take advantage of the opportunities thus afforded their children. A few extracts from letters and reports will illustrate the methods in use at present, and also show the trend of educational opinion.

Illinois—The State apportions the amount derived from the State school fund to the common schools, on the basis of the number of persons under twenty-one years of age residing in the counties, as shown by the national census.

New Jersey—Our ungraded schools derive most of their entire revenue from this State in the following manner: two hundred dollars per each teacher employed, and the balance per capita according to school census.

Pennsylvania—The revenues for the support of the ungraded schools in Pennsylvania are distributed on the basis of the number of taxables at the triennial assessment.

Florida—The one-mill tax is apportioned among the counties on the basis of the average attendance upon school.

Mississippi.—The money is distributed to the counties and separate school districts on the basis of educable children in each.

Nebraska—The interest of the permanent State endowment is apportioned to the school population.

Rhode Island—The State money for schools is divided in all the cities and towns upon two different plans. Each town gets one hundred dollars for each school up to fifteen in number, and after that, all that is left is divided in proportion to the number of children of school age.

Minnesota—The current school fund is apportioned to the districts in proportion to the number of pupils who have attended school at least forty days in the year.

Virginia—State school money is apportioned on the basis of the school population.

Ohio—The auditor of the State shall apportion the State common-school fund to the several counties of the State semi-annually, upon the basis of enumeration of youth therein. But

the law in another section provides that so much of the contingent fund as may be set apart by a township for the continuance of schools after the State funds are exhausted, shall be so apportioned by the board that the schools in all the subdistricts of the township shall be continued the same length of time each year.

Iowa Report—The suggestion made by my predecessor that the apportionment of money at present derived from the interest of the permanent school fund and other sources, should be based upon the average daily attendance for the preceding year, as reported by the county superintendent to the superintendent of public instruction, carries with it much force. It seems the only just and equitable way, when we consider that the money would thus reach those schools in which there is the most work to be done on account of the large number of pupils. In fact, such an enactment would doubtless increase the attendance and act as a very efficient auxiliary to a compulsory law.

Washington Report—The manner of apportioning the common-school fund among the various districts is a matter that has often been the subject of interesting discussions, and, while the method at present in vogue seems not to have been very seriously criticised since its adoption, there are grave doubts as to its efficacy in accomplishing the best results possible with the fund at our disposal.

South Dakota—The apportionments of State and county general school fund should be based on the total attendance as shown by the annual reports of district clerks and not on the total number of persons of school age. When the amount of each quarterly apportionment is made dependent upon the school attendance, there can be no doubt that more pupils will be enrolled in our schools than there have been heretofore, and that their attendance at school will become more regular. Such an amendment would probably increase the per cent. of attendance much more rapidly than our compulsory attendance law has yet done.

New Jersey Report, 1893—A fair distribution of State

school moneys would require that a part, if not all, should be apportioned on the basis of the number of pupils actually enrolled or taught in the schools, and not, as now, wholly on the basis of the number of children of school age, whether enrolled and taught or otherwise.

It is plainly the consensus of opinion that the prevailing system of distributing school funds, *pro rata*, upon the school population as a basis, is detrimental to the interests of the rural schools. The result of this plan of distribution has been to give an undue advantage to the schools in the strong districts, and to leave those in thinly settled and impoverished districts helpless and unprovided for. Several States have already sought a remedy. If it is right to tax all for the benefit of all, then it is just so to distribute the funds thus raised as to accrue to the advantage of the entire community.

The most feasible methods of distribution cannot be discussed without reference to the next topic in this report, that of organization. We, however, cannot fail to reach the conclusion that justice to the rural schools demands that some method be devised, which will insure a reasonable support to the weakest school, and at the same time act as a stimulant in obtaining the highest possible per cent. of attendance.

ORGANIZATION

The limits of this report will only allow us to say that, with but very few exceptions, the judgment of State superintendents, as gathered from their replies to the circular sent to them, and from various State reports, is strongly in favor of the township as the unit of organization.

A few extracts from these papers must suffice. However, the old maxim applies: "From one learn all."

Missouri—I prefer the township system because it operates on a larger scale, and is likely to give expression to the sentiment of better men.

New Jersey—Hence it is that the system [district] intro-

duced many years ago, whereby townships were divided into school districts to fit the then prevailing conditions, is to-day antiquated, inefficient, and expensive.

Michigan—We prefer the township system because it would lead to a uniformity of text-books, taxation, length of school year, for all of the children of the township, and equal facilities so far as teachers and apparatus are concerned.

Wisconsin Report, 1894—In my judgment the substitution of the township for the district as the unit of the system would result in the increased efficiency of the common schools.

Mississippi—I believe the township system is the true philosophical system for public-school organization, although we cannot reach it, owing to uneven distribution of population.

Texas—I prefer the township system, with the county system as a close second choice. The district is too small to permit the organization of schools of different grades. The county is larger than necessary. The township is free from both objections.

Pennsylvania—We prefer the township organization to district and county organization.

Indiana—We tried the district system several years ago, and should consider it taking a long step backward to drop the township and take up the district system again.

Vermont—It is doubtful if any law [township system] enacted in the State of Vermont, received under such antagonistic and discouraging circumstances, ever won more or stancher supporters than our present law during the short time it has been in operation.

Ohio—To anyone who will take the trouble to give this subject careful study, the conclusion will be evident that the township is unquestionably the correct educational unit.

Iowa—The only feasible remedy for these evils is to return as soon as possible to the provision of the organic law of 1858, making each civil township a district for school purposes.

New Hampshire—The most far-reaching change made in the last ten years has been the substitution of the town system for the effete and impotent system of district schools. The dis-

trict school had lost much of its usefulness, and was, in many towns, no longer susceptible of improvement. Under the town system it is regaining its power, and a better educated class of children is growing up in the rural sections of the State.

Rhode Island—As fast as our towns have abolished the district by their own vote, they at once begin to consider the matter of a high school. So long as the districts exist we shall not have high schools, but if we can get rid of the districts we shall ultimately be able to provide high-school facilities for the greater part, if not for all, of the children of the State.

The principal arguments in favor of making the civil township the unit may be stated briefly as follows :

1. Effectiveness and economy of administration. The number of school officials would be greatly reduced, and hence there would be less liability to loss of funds through incompetency or dishonesty. In Iowa 27,000 school officers are serving as members of school boards. The secretaries and treasurers receive $135,000, annually, as compensation for their services. In Minnesota the township system would reduce the number of school officers from 18,000 to 3000. In Wisconsin, it is estimated that the sum of $190,000 is wasted annually upon unnecessary schools. Under the district system, there is a great waste of supplies in one school, and a want of the same in another; buildings are allowed to become dilapidated for want of attention; several school officials are paid, when one officer would suffice. In these respects the township system would effect a saving of thousands of dollars annually. It is simply applying business principles to the business affairs of the schools.

2. Effectiveness and simplicity of organization. The township board of education, a certain proportion going out of office every year, should be armed with the same powers and exercise the same duties as the board of education in the city or in the independent district. They should appoint teachers,

locate buildings, select text-books, determine courses of study, designate what schools pupils may attend, consolidate schools when their numbers are reduced to a certain extent, and in fact transact any business which may lawfully come before them.

Subdistrict lines would disappear and a most fruitful cause of trouble cease at once. In unity there is strength. To place all the schools of a township under the control of one governing board would tend to equalize length of terms, strengthen the teacher's position, and lift the schools to a higher place in the estimation of the public.

3. The township system affords the only means through which we may hope to reach township high schools and township supervision. We believe these two points are essential in any system looking to the improvement of the ungraded schools. The township high school has become a necessity, if we are to lift the rural school out of the rut into which it has fallen. To promote the highest efficiency of such a school, it must be in complete and perfect harmony with the schools of the township. This cannot be the case unless they are all under the control of one board, and supported from the same general funds. The establishment of these high schools would furnish a needed incitement to the pupils in the lower grades in the country, and would stimulate them to remain longer in school that they might graduate at the end of the course. It would dissipate the aimlessness of study and instruction so prevalent in the country schools of to-day. The answer to the question, is it possible to arrange the course so as to lead up to the establishment of the township high school, is invariably in the affirmative. Township supervision is a natural result of the township system. It has already become an established feature of the Massachusetts system. It is rapidly gaining ground in Ohio under the Workman law. It is the objective point at which the board of education is aiming in New Jersey, and other States are developing the idea of either township or of some other form of close supervision in connection with the ungraded schools.

The establishment of the township high school would tend

to strengthen the county superintendency. These schools would afford better facilities for the academic instruction of teachers. They could be utilized as centers of normal instruction. The township superintendent would naturally become the ally of the county superintendent in conducting educational meetings, in grading the schools, and in fostering a healthy public opinion in favor of good schools, competent teachers, and liberal salaries.

4. The adoption of the township system equalizes the burdens of taxation, and renders it possible to distribute State school funds in inverse ratio with the wealth of the towns. If the towns of the State have a valuation upon a common basis, then it is just that, to a certain extent, those lowest in the scale should receive the greatest aid from State funds, in order that every community may be sure of good schools. This is the Massachusetts plan. In some States, notably in Massachusetts, New Jersey, and Rhode Island, a fixed sum is set aside for every school before any general distribution is made. The method of determining the exact amount thus placed to the credit of each school may be different in different States, but we believe the underlying principle to be correct, that public policy demands that the strong shall help bear the burdens of the weak. The remainder of State or county funds should be distributed to each township in a ratio based upon the actual attendance of pupils as shown by the record of the preceding year, with a possible discrimination in favor of those towns most willing to impose school taxes upon themselves.

There is not time to discuss other points. Under the Workman law in Ohio, many of the benefits of the township system may be obtained without abolishing subdistrict lines. Under the Boxwell law in the same State, the tuition of graduates from ungraded schools may be paid by the township board in the high school of any neighboring city or village of the county. Such a provision in the law is practically introducing the county high school, and in many States would be a most desirable feature. In Massachusetts, New Hampshire, and

other States, township boards are authorized to pay out of public funds for the transportation of pupils to such schools as it seems best for them to attend. Thus they are enabled in small towns to bring all the children to a central school, or to unite two or more small schools, lessening the expense, and at the same time improving the educational advantages of the township. These points with many others are all germane to our general subject, but there is not time to discuss them in this connection. It must suffice to say that we can reach no other conclusion than this: The substitution of the township for the district, as the unit of organization, is absolutely essential to the highest good of the ungraded schools.

SUPPLY OF TEACHERS

The great question of the supply of competent teachers for the ungraded schools remains to be discussed. Of every 100 pupils enrolled in the public schools, Texas reports that 80 are in the ungraded schools; Indiana, 65; Illinois, 42; New Jersey, 25; Minnesota, 40; Ohio, 50; Wisconsin, 58; Florida, 90; Massachusetts reports only 10; California reports no ungraded schools, but 40 per cent. of the pupils are in schools of one or two rooms. These figures at best are only approximate, but they are enough to show the magnitude of the question under discussion. Undoubtedly the number of pupils enrolled in ungraded schools will reach nearly, if not quite, 50 per cent. of the entire enrollment. If we include schools of two or three rooms having practically no supervision, and which are but partially graded, the per cent. would be much higher. It is very difficult to gather statistics which show the number of teachers in the ungraded schools, having anything like an adequate preparation for their work. When we take into consideration the fact that the very large percentage of graduates of our normal schools is absorbed by the schools in the cities and larger villages, and that usually the bright teachers, who have had the benefit of a partial course in the normal school, work their way into graded schools as fast as possible, it is

evident that the schools in the country are mainly left to the care of novices without any special training.

The school age, the manner of gathering statistics, the numbers of months in the school year, vary so much in the different States that it is impossible to arrive at anything but general conclusions. In the number of trained teachers employed in the different States there is a wide margin. Virginia and Kentucky report only 10 of every 100 teachers as having anything like an adequate preparation for their work. Texas and Nebraska report only a very few. In some parts of California 70 per cent. have professional training, in others as low as 10 per cent.

Rhode Island—About 10 per cent. with only a common-school education, 40 per cent. normal trained teachers, and the remainder having either a high-school or an academic training.

Missouri—About 25 per cent. of the teachers in ungraded schools are really prepared to teach.

Minnesota—About 19 per cent. of the teachers in our common-school districts have attended normal school.

Michigan—About 20 or 25 per cent. of the teachers of the schools have had some normal training.

Wisconsin—About 50 per cent. of the teachers are really prepared for their work; 2644 of them claim no higher preparation than that obtained in the common schools.

Indiana—About 15 to 25 per cent. of our teachers in the ungraded schools have had an adequate preparation for their work.

It is not necessary to follow these statistics. They are taken from different sections of the country, and are sufficient to indicate conditions in the rural schools. What is a fairly adequate preparation for the work in these schools? When we consider the low salaries paid, the short term of continuance in the work, not much if any over three years, it is evident that we cannot require a high standard of scholarship, nor four years' attendance at a preparatory school. A reasonable preparation ought to embrace these three particulars:

1. A thorough acquaintance with the elementary branches. This would include a discussion of the educational values of these branches both as sources of knowledge and of discipline; what studies should be introduced as best calculated to benefit the children in the mining districts, in the farming districts; and other questions as incidental to the formation of courses of study, which should be sufficiently elastic to suit conditions in different sections of the same State. But these all yield preference to the thought that whatever the teacher attempts to teach, that she herself must know.

2. A practical knowledge of the best methods of teaching, of school management, and an elementary knowledge of the principles of education.

3. More or less practice in actual school work under a skilled trainer. This preparation would touch the three points in which the country school teacher is weakest.

These are the minimum of requirements and can possibly be compassed in a two years' course, provided the entrance examination is rigid in the fundamental branches. Here we are confronted with the fact that no State provides means sufficient to give to the teachers advantages for obtaining this special preparation. Massachusetts, with 6 normal schools, and with 4 additional schools in course of erection, comes the nearest to it. Pennsylvania has 13 normal schools, each well equipped, but she has an army of 26,000 teachers. New York, with 11 normal schools, and a large number of training classes, is yet very far from being able to place a trained teacher in every schoolroom in the State. To put Iowa on an equal footing with Massachusetts would require the establishment of 25 normals. While the erection in any State of high-grade normal schools, as centers of influence and enlightenment, with courses of instruction covering three or four years, is exceedingly desirable, it is evident that the solution of the problem does not lie in that direction.

There are four courses open to us:

1. The improvement of the county institute. This is not

the place to discuss the institute system except as regards a few particulars in which it touches closely the preparation of teachers for rural schools.

It will not do to turn the institute into a school for academic work, the aim being to enable the teachers to pass the examination. The tendency in this direction is altogether bad. The spirit in which the institute was founded, calculated to create and foster a professional enthusiasm among teachers, and an educational enthusiasm in the entire community, should not be overlooked. It is a very essential feature in the system. In the Western and Southern States, where for a time we must depend upon the institute to aid us in preparing country teachers for their work, there is one point which must be insisted upon. The instructors must be persons who know what good teaching is. They must be men and women who have had a professional training, and who have made a study of the conditions and wants of the schools in which the teachers in the institute are to instruct. Every exercise should be full of professional spirit, and every recitation should be a model recitation. It happens many times that the institute is the only opportunity given the teachers to learn, by actual experience, in what a good school consists. This one point being carefully guarded, the institute may be left to take such form and shape as the conditions of the community may determine. A dead uniformity in institute work, even in the same State, is to be dreaded.

2. A system of summer or training schools, under the care and direction of State authority. Minnesota is making this experiment with assured success. A school of six weeks' duration, if rightly conducted, gives the teacher an opportunity to review under a competent instructor branches in which she is deficient. It is a new era in the life of many country teachers to come under the influence of a scholarly and cultured person, if only for a few weeks. Even this minimum of training thus secured cannot but be productive of good to the schools.

3. The State should avail itself of existing educational insti-

tutions. It is a fact which everyone acquainted with educational progress in the Western States must have observed, that those colleges in which sound scholarship is the basis of work have produced a marked effect upon the schools in the surrounding region. We ought to make use of the preparatory departments of these colleges in fitting teachers. There are in Iowa several private normals which carry a two years' course only, and which, by arrangements with school officials, control the work in the public schools so as to afford the necessary practice in school work. Why should not the State give them material encouragement, if they conform their course of study to the requirements of the State department of instruction and open their work to State inspection? New York, with her system of training schools, claims to be making progress in the direction of preparing teachers for the ungraded schools. These classes are supported by the State, but the amount received depends upon the character of the work done as tested by the final examination. Although New York has exceptional facilities for this work in a large number of old and well-established academies, there are some features of the plan which are worth consideration in other States.

4. The establishment of small normal schools at moderate expense, as fast as possible, in different places in the State. Care must be taken that such schools do not take on the name of college or ape the airs of the university, and that the course of study does not become top-heavy. They must be kept down to the specific work of fitting the country teacher for her work in the country school.

The objective point to be aimed at in each of these plans is to bring at least a modicum of professional training to the doors of the teachers in the ungraded schools. When this is done we can shut the schoolroom door in the face of the untrained teacher.

The committee reach these conclusions:

1. The proper unit of taxation is in no case the district. It should be either the township or the county, as the civil organization of the State may determine.

2. Every community should be required to raise a certain sum for the support of their schools as prerequisite for receiving their share of public money. A certain definite sum should be appropriated to each school out of the State funds, and the remainder should be divided *pro rata*, in accordance with the actual attendance as shown by the certified records of the preceding year, with a discrimination in favor of townships most willing to tax themselves for school purposes.

3. The unit of organization should be the township, unless, as in some of the newer States, the civil unit may render the county preferable. In no case should it be the district.

4. The weakness of the rural schools is in the want of skilled teaching, therefore it is the duty, as it is for the interest, of the State to foster and encourage all available means of bringing normal instruction to the doors of the teachers, with a view of rendering it feasible to require some degree of special preparation for the work from every candidate who aspires to the position of teacher in the ungraded schools.

Committee on State School Systems

HENRY SABIN, Des Moines, Ia., *Chairman.*
JAMES H. CANFIELD, Lincoln, Neb.
JOHN W. DICKINSON, Newtonville, Mass.
J. R. PRESTON, Jackson, Miss.
N. C. SCHAEFFER, Harrisburg, Pa.

VI

REVIEWS

NOTES ON NEW BOOKS

Mention of books in this place does not preclude extended critical notice hereafter

The reader of Scripture's *Thinking, feeling, doing*, closes the book with a feeling of sorrow rather than of anger—sorrow that at any American college there is a teacher whose shallowness and utter lack of scientific training are such as to disfigure a book that might have been made an interesting and satisfactory introduction to experimental psychology for popular use. But the author's flings at learning of every kind that cannot be "measured," and his manifest ignorance of much that is necessary for the equipment of a scientist in any branch of modern knowledge, make his book worse than useless, attractive as some of its features are. A course of reading in Darwin, Huxley, Tyndall, Clerk Maxwell, Helmholtz, Du Bois-Reymond, and others, with a view to learning what scientific method is and what the scientific attitude involves, is earnestly recommended to him, and in no carping spirit (Meadville, Pa., The Chautauqua Press. Flood & Vincent, 1895. 304 p. $1.50).——The handsomest and most legible German type that has yet been cast is that used in the three admirable little reading-books—Stifter's *Das Heidedorf*, Seidel's *Die Monate*, and Seidel's *Der Lindenbaum* (New York: American Book Co., 1895. 25 cents each).——*Doctrine and life* is the title of a series of studies of some of the principal truths of the Christian religion in their relation to Christian experience, by Professor George B. Stevens of Yale (Boston: Silver, Burdett & Co., 1895, 246 p. $1.25).——A distinct service has been rendered to the literature of political science, and an unexcelled text-book for college students made available, by the reprint, in cheap and convenient form, from the late Professor T. H. Green's collected works, of his *Lectures on the principles of political obligation*. The high philosophical morality and the sterling scholarship that pervade these lectures cannot be made too familiar to American students (New York:

Longmans, Green & Co., 1895, 252 p. $1.75).——The admirably edited *Selections from Newman*, by Mr. L. E. Gates of Harvard University, provide a striking addition to the texts available for the study of literature in school and college (New York: Henry Holt & Co., 1895, 228 p. 90 cents).——Cicero's oration *Pro Cluentio* is hardly ever read by American schoolboys, although, as is well known, the great historian Niebuhr regarded it as the best possible study for those who wish to perfect themselves in the art of expression, as well as to gain an adequate knowledge of Cicero's oratorical style. A new and scholarly edition of this oration by Professor Peterson of University College, Dundee, may serve to attract attention to it anew (New York: Macmillan & Co., 1895, 175 p. $1.50).——A foreign book on chemistry of great importance is *Analytical chemistry* by Professor Menschutkin of St. Petersburg, of which an English translation by James Locke has just been issued (New York: Macmillan & Co., 1895, 512 p. $4.00).——A second series of *Biological lectures*, delivered at the marine laboratory at Wood's Holl during the summer of 1894, is now available for students and general readers (Boston: Ginn & Co., 1895, 287 p. $2.00).——Professor Mace of Syracuse University has provided in his *Working manual of American history* a capital book for intelligent teachers of that subject (Syracuse, N. Y.: C. W. Bardeen, 1895, 297 p. $1.25).——From the same publishing house comes a very complete and carefully classified *Outlines of psychology*, by Henry G. Williams, superintendent of schools at Lynchburg, O. (Syracuse, N. Y: C. W. Bardeen, 1895, 148 p. $1.00).

VII

EDITORIAL

Hereafter the REVIEW will publish, at stated intervals, a succinct and accurate summary of the contents of the leading educational periodicals in Europe. This summary will be contributed by Dr. F. Louis Soldan, principal of the High and Normal Schools, St. Louis, Mo.

The Denver meeting of the National Educational Association has come and gone, and all the high hopes and pleasant anticipations concerning it were far more than realized. It proved to be one of the greatest meetings ever held on this continent, perhaps the very greatest. Its greatness consisted not alone in the large attendance, although this was unprecedented; but in its high plane, its broadly representative character, its cordiality of feeling, and the permanent stimulus that it gave to the scientific study of education and its problems. A veteran, who has been honored in years past with the presidency, called attention more than once to the great contrast between the Madison meeting of 1884, or the Chicago meeting of 1887, and that at Denver; remarking enthusiastically that the number and character of those present, the ability and elevation of the papers and discussions, and the whole tone of the meeting, proved conclusively that in ten years the Association has moved steadily forward and upward until now it is one of the really great intellectual and moral forces of the country.

The attendance exceeded somewhat the estimates published before the meeting, but did not vary materially from the predictions made by the executive officers on the basis of the managers' reports. The total number of persons who visited Denver on account of the meeting was about 15,500; the railroads, with their various means of counting accurately the number of excursionists, made this figure public. Up to July 17, when the executive officers left for home, Treasurer McNeill had recorded the names and collected the fees, or coupons, of 11,240 members. Probably enough more will be

added to bring the grand total up to nearly 12,000. Illinois led with an attendance of 1495; but Colorado (1080), Missouri (1113), Iowa (1086), and Kansas (1171), were not far behind, each of the four contributing over 1000 to the total. New York did extraordinarily well (520), and smaller States like Louisiana, New Jersey, Rhode Island, and Delaware exceeded all expectations. The vast crowd was met, disposed of, and cared for in a truly admirable manner; for in completeness and efficiency the local arrangements excelled even those at Toronto. How much of this is due to Superintendent Gove may readily be guessed, but the devotion and ability of his numerous coadjutors and assistants would have made even a poor plan work well.

The meetings of the general Association were, without exception, crowded to the doors. On Tuesday afternoon, when the addresses of welcome were delivered, it was reported that four thousand persons were in the hall and as many more in the streets adjoining. An overflow meeting was promptly organized, and Colonel Parker, President John W. Cook, Superintendent Marble, and President De Garmo were kind enough to deliver impromptu addresses to hundreds of enthusiastic teachers who could not force their way into the regular meeting. The crowd was so great that on Tuesday evening, Wednesday morning, and Wednesday evening other overflow meetings had to be provided.

Of the programme it is unnecessary to speak at any length. Three of the principal evening addresses are printed in this number of the REVIEW, and a fourth will appear next month. The papers on the coördination of studies by President De Garmo, Professor Jackman, and Professor C. A. McMurry were very attentively listened to and heartily applauded. In fact the reception accorded to the representatives of the younger school of educationists was markedly cordial, in the Association itself as well as in the Council and in the several Departments.

On Thursday morning Supervisor Martin's great paper lifted up the audience to a high plane, and nothing that followed lowered it in any way. Particularly noteworthy were the eloquent addresses by Professor Baldwin of Texas, Dr. Bartholomew of Kentucky, and Superintendent Preston of Mississippi, on the subject of good citizenship and in opposition to sectionalism of thought or deed. On no other plat-

form in America could such inspiring and patriotic addresses by Southern men have been heard, and by no other audience would they have been so heartily and sympathetically received. Professor Baldwin himself remarked, after the session was over, that each year as he attended these meetings he found the lines between States and sections growing dimmer, and a marked increase in the depth and strength of the feeling that the teachers are banded together in behalf of the interests of a common country whose several sections are but memories.

The newspapers of Denver reported the meetings with great fullness and with unusual accuracy. The only exception was when one imaginative scribe endeavored to manufacture the "politics" that he was unable to find, and produced an article that was very unfair to Mr. Gove, Mr. Cook, and Mr. Dougherty, and very distasteful to them all. But members of the Association were not deceived for a moment, and the offense was not repeated. As a matter of fact, "politics" was as absolutely lacking at Denver as it was at Asbury Park, and it is hoped and believed that it will never trouble the Association again.

Absolute unity of feeling existed regarding the election of executive officers, and the following were unanimously agreed upon by the committee on nominations and elected by the Association without a dissenting voice:

President: Newton C. Dougherty, Peoria, Ill.
Secretary: Irwin Shepard, Winona, Minn.
Treasurer: Israel C. McNeill, Kansas City, Mo.
Vice Presidents: 1st, Nicholas Murray Butler, New York, N. Y.; 2d, Mrs. A. J. Peavey, Denver, Colo.; 3d, W. H. Bartholomew, Louisville, Ky.; 4th, N. C. Schaeffer, Harrisburg, Pa.; 5th, W. N. Sheats, Tallahassee, Fla.; 6th, Henry Sabin, Des Moines, Ia.; 7th, E. B. McElroy, Eugene, Ore.; 8th, C. G. Pearse, Beatrice, Neb.; 9th, Henry R. Pattengill, Lansing, Mich.; 10th, R. H. Halsey, Oshkosh, Wis.; 11th, T. B. Lewis, Ogden, Utah; 12th, Estelle Reel, Cheyenne, Wyo.
Directors: Alabama, F. M. Roof, Birmingham; Arizona, T. D. Comstock, Tucson; Arkansas, Junius Jordan, Little Rock; California, Earl Barnes, Stanford University; Colorado, J. H. Van Sickle, Denver; Connecticut, George B. Hurd, New Haven; Delaware, A. N. Raub, Newark; District of Columbia, Z. Richards, Washington; Florida, Oscar Clute, Lake City; Georgia, Otis Ashmore, Savannah; Idaho, F. B. Gault, Moscow; Illinois, John W. Cook, Normal; Indiana, D. K. Goss, Indianapolis; Iowa, F. B. Cooper, Des Moines; Kansas, John McDonald, Topeka; Kentucky, James McGinness, Owensboro; Louisiana, Warren Easton, New Orleans; Maine,

M. C. Fernald, Dover; Maryland, E. B. Prettyman, Baltimore; Massachusetts, Ray Greene Huling, Cambridge; Michigan, S. E. Whitney, Detroit; Minnesota, C. B. Gilbert, St. Paul; Mississippi, R. B. Fulton, University; Missouri, John R. Kirk, Jefferson City; Montana, John M. Hamilton, Missoula; Nebraska, W. H. Skinner, Nebraska City; Nevada, J. E. Stubbs, Reno; New Hampshire, C. C. Rounds, Plymouth; New Mexico, Charles E. Hodgin, Albuquerque; New York, Charles R. Skinner, Albany; New Jersey, J. M. Ralston, Asbury Park; North Carolina, Bennett Smedes, Raleigh; North Dakota, L. B. Avery, Mayville; Ohio, W. J. White, Dayton; Oklahoma, D. R. Boyd, Norman; Oregon, J. H. Akerman, Portland; Pennsylvania, Charles De Garmo, Swarthmore; Rhode Island, Horace S. Tarbell, Providence; South Carolina, D. B. Johnson, Columbia; South Dakota, George M. Smith, Vermilion; Tennessee, Frank Goodman, Nashville; Texas, H. C. Pritchett, Huntsville; Utah, W. R. Malone, Salt Lake; Vermont, Alfred Turner, Rutland; Virginia, E. C. Glass, Lynchburg; Washington, F. J. Barnard, Seattle; West Virginia, Robert A. Armstrong, Morgantown; Wisconsin, D. D. Mayne, Janesville; Wyoming, A. L. Putnam, Newcastle.

The unanimous selection of Mr. Dougherty for the presidency was a splendid tribute to his ability and character, as well as to his long service in the Association. His administration is sure to be a successful one, and will in every way tend to the elevation and advancement of the Association's work. The re-election of Dr. Shepard for a fourth year of service as secretary simply reflected the absolute feeling of satisfaction with his services that exists. His post is very laborious and makes unremitting demands upon the time and patience of the incumbent. By his conscientiousness, ability, and devotion Dr. Shepard has placed the Association under lasting obligations to him, and the two presidents with whom he has already served are his personal debtors.

Mr. McNeill, who becomes treasurer in succession to Mr. Greenwood, is widely known in the Association, and brings to his new duties most unusual qualifications. It is due to him alone that the railroad arrangements for the Denver meeting were not only the best ever made, but almost perfection itself. In his hands the financial administration will be careful and businesslike, and in the Executive Committee his sound judgment will be invaluable.

The vacancy on the Board of Trustees caused by the expiration of the term of Dr. E. C. Hewett of Bloomington, Ill., was filled by the election of Superintendent A. G. Lane of Chicago, whose experience as an executive officer of the Association made him the best possible choice.

A very important and long-desired step was taken by the Association in the amendment of the constitution so as to provide for a voting membership composed exclusively of teachers and persons connected with educational work. This was accomplished by making a list of active members, to be composed at first of all persons who have been members for any two years in the past. Payment of the annual fee of two dollars is necessary to retain active membership, whether present at the meeting each year or not. New active members must be proposed by two members and pay an enrollment fee of two dollars in addition to the annual dues. All others who attend the meetings and pay the fee of two dollars are to be associate members. Their names will not be printed in the volume of *Proceedings*. By this action the Association provides itself with a dignified membership and an easily ascertained voting body. The situation presented to President Canfield at St. Paul in 1890 need never be repeated under the new rule.

Other amendments that increase the efficiency of the Association's business organization are those that abolish life directorships and life memberships, reduce the size of the Board of Directors, and make the Executive Committee constitutional officers. The Board of Directors also passed an important order relating to the details of the duties of the treasurer, and added departments of physical training, science teaching, and school administration to those already existing. It is worth while noting that every proposition laid before the Association itself or before either Board of Directors was carried by unanimous vote, with one exception; in the old Board of Directors eleven votes were cast against the proposition to establish a department of physical education. Of course, in voting for the place of meeting in 1896 each director expressed his personal preference. On the first ballot, when each director named his first, second, and third choice, Duluth had a total of 26, Asbury Park 22, and Los Angeles 20. On the second ballot only the first choice was expressed, and the result was: Los Angeles 12, Duluth 9, Asbury Park 7. The whole matter was then referred, as usual, to the Executive Committee, with full power to select the next place of meeting.

The important report on the rural school problem, which is printed in full in this issue of the REVIEW, made so strong an

impression upon the National Council of Education that the following resolutions were passsed by that body:

RESOLVED, That there be undertaken, under the auspices of the Council, an investigation of the subject of rural schools, embracing such topics as revenues and expenditures, the constitution, organization, and duties of boards of management and control, and the provision of suitable teachers. More definitely said investigation shall be conducted in general on the lines laid down in the report of the committee on State school systems submitted to the Council at its present session.

RESOLVED, That a committee of nine be appointed to conduct this investigation, said committee to consist of the following persons: Henry Sabin of Iowa; D. L. Kiehle of Minnesota; A. B. Poland of New Jersey; C. C. Rounds of New Hampshire; J. H. Phillips of Alabama; B. A. Hinsdale of Michigan; S. T. Black of California; W. S. Sutton of Texas; and L. E. Wolfe of Missouri.

RESOLVED, That the board of directors of the National Educational Association be urgently requested to appropriate, at some session to be held during the course of the present annual meeting, the sum of $2500, or such part thereof as may be necessary, to defray the expenses of this investigation, including the publication of the report of the committee.

RESOLVED, That the committee shall report within the period of two years in such form as it may determine, and that it be authorized to publish its report.

Subsequently the membership of the committee was increased from nine to twelve, and the names of Charles R. Skinner of New York, Lawton B. Evans of Georgia, and William T. Harris of Washington, D. C., were added to those given in the above resolutions.

When the action of the Council was formally laid before the Board of Directors, the latter body unanimously adopted the following resolutions, which were introduced by the first vice president of the N. E. A.:

RESOLVED, That the board of trustees be authorized to place in the emergency fund the sum of $2500, should such sum remain after all expenses incurred by the National Educational Association in connection with the meeting at Denver, in 1895, have been met.

RESOLVED, That, should the emergency fund permit, the board of trustees are hereby authorized to audit and pay bills presented over the signature of the chairman of the special committee of twelve on rural schools appointed by the National Council of Education at Denver, July, 9, 1895, for the purpose of investigating problems connected with the rural schools of the country, their financial support, the organization of boards of management, the provision of teachers, etc.

PROVIDED, That the total bills for this purpose shall not exceed the sum of $2500, not more than $1500 of which shall be drawn during the year 1895-96; and also PROVIDED that all such bills be for expenses actually

incurred with the approval of the chairman, and that no portion of the fund be drawn upon for compensation to any member of the committee or any officer thereof. PROVIDED, further, that the sum of $2500 may be drawn upon, if necessary—and if it is found sufficient—to defray the expense, in whole or in part, of the publication of the report of said committee, the method and manner of publication to be subject to the approval of the president of the National Educational Association.

By this action the N. E. A. not only continues the policy entered upon at Saratoga in 1892, but it formally directs the attention of the country to the great problem of the ungraded rural school, than which no other is more important to the great mass of the population to be found outside of the cities and towns. The committee is a very competent one, and with Mr. Sabin at its head results of lasting importance are sure to be accomplished. Of the twelve members Dr. Harris served both on the Committee of Ten on secondary school studies and on the Committee of Fifteen on elementary education. Dr. Poland of New Jersey was also a member of the latter committee.

Another very useful work is to be undertaken jointly by the Departments of secondary and higher education at the instance of Dr. Nightingale of Chicago. A committee is to be designated which will first ascertain and tabulate the facts concerning the various plans now in vogue concerning the admission of pupils to college. They will then proceed (1) to compare these plans and consult as to the most just and practicable ones; (2) to ascertain whether the rigid system of a special examination of pupils who have come specifically prepared for a given college cannot be superseded by something which will increase the college spirit in the secondary schools, and at the same time enhance the interests of higher education; (3) to bring, in fine, the secondary schools and colleges closer together, so that one shall lead directly to the other.

To make this work really effective the co-operation of the large Eastern colleges must be secured. Unfortunately they have dealt in the past so largely with candidates for admission prepared in private classes or in private fitting-schools, that they are out of all touch with the public high schools of the country and have little or no real knowledge of the problem that is to be solved. But if constant dropping will wear away a stone, constant iteration ought, after a while, to set in motion even a college faculty.

Another extremely important step was taken at Denver in the organization of a society, national in extent, for the scientific study of teaching. This society is an outgrowth of the Herbart Club which has existed for several years, and is to bear the name of Herbart—The Herbart Society, for the scientific study of teaching. The name indicates a desire to honor the memory and influence of one of the great masters of educational theory; but, in order that the society may not appear to be narrow and partisan, it has adopted as its motto, the Horatian line,

Nullius addictus jurare in verba magistri.

Its investigations and publications, therefore, will be catholic and unbiased, although a number of the new society's executive council are strong believers in certain phrases of Herbartian doctrine and are actively engaged in making them known to teachers in the United States.

An executive council of nine members will direct the Society's work. They are as follows:

CHARLES DE GARMO, President of Swarthmore College, Swarthmore, Pa., *President*.

NICHOLAS MURRAY BUTLER, Professor of Philosophy and Education, Columbia College, New York.

JOHN DEWEY, Head Professor of Philosophy, University of Chicago, Chicago, Ill.

ELMER E. BROWN, Professor of Pedagogy, University of California, Berkeley, Cal.

WILBUR S. JACKMAN, Professor of Natural Science, Cook Co. Normal School, Englewood, Ill.

CHARLES A. MCMURRY, State Normal University, Normal, Ill., *Secretary*.

FRANK M. MCMURRY, Professor of Pedagogy, University of Buffalo, Buffalo, N. Y.

C. C. VAN LIEW, State Normal University, Normal, Ill.

LEVI SEELEY, Professor of Philosophy and Pedagogy, State Normal School, Trenton, N. J.

The Society desires to draw into its membership all teachers and parents, students of education, who wish to keep abreast of the best and most modern thought on education, and who are willing to follow a sound scientific method, wherever it may lead, in the study of educational questions. The Society will publish a Year-Book, similar to that issued this year, about six or eight weeks before the annual meeting of the N. E. A., and the monographs in the Year-Book will be discussed at an open meeting of the Society to be held at the time and place

of the meeting of the N. E. A. The Year-Book, and such other publications as may be issued, will be sent free to all members of the Society. Membership may be secured by forwarding an annual fee of one dollar to the secretary, at Normal, Ill.

A plan has been formulated by which local affiliated clubs may be formed by those wishing to study and discuss the Year-Book and other literature issued by the Society. When four or more members form a local club the membership fee is fixed at seventy-five cents for each person. Each club will designate the person who is to act for it in corresponding with the Society.

The First Year-Book was issued before the Denver meeting of the N. E. A., and its contents were discussed there before large and interested audiences. This volume contained four valuable papers: one on the most pressing problems concerning the elementary course of study, by President De Garmo; one on concentration, by Professor F. M. McMurry; one on the culture-epochs theory, by Dr. C. C. Van Liew; and one on a plan of concentration for the first two school years, by Mrs. Lida B. McMurry. Every progressive teacher should study these papers carefully. Dr. C. A. McMurry, Secretary of the Herbart Society, will furnish the Year-Book, for fifty cents a copy, on request.

The further continuance of the system of uniform entrance requirements in English, adopted last year by educational organizations representing the colleges and preparatory schools of the Middle, the New England, and the North Central States, is guaranteed by the action of the Second Annual Conference held in Boston in May, 1895, by representatives of the Association of Colleges and Preparatory Schools of the Middle States and Maryland, the New England Association of Colleges and Preparatory Schools, the Conference of Teachers of English of the North Central States, and the New England Commission of Colleges. All that the Conference seems to have accomplished, however, is the choice of the books prescribed for reading and study for two additional years—a period too short to enable the public to have any definite idea of the principles underlying the system of selection. Two dangers already seem to threaten the results to be gained from the new organization for securing uniformity. First, the Conference has

shown unnecessary timidity in failing to put on record more definite recommendations as to the character and amount of the work to be done in English in the secondary schools. At present it has merely formulated a scheme for uniform examination requirements. But, especially under the widely prevalent system of admission to college by certificate, it is not of half so much importance what candidates should be examined on, as how, in general and detail, they should spend their four years of high-school study—a matter only vaguely indicated by the uniform requirements. Second, the representation of the Conference is in danger of becoming merely local. Six members from New England, three from the Middle States, and one from the rest of the country, is an arrangement that omits altogether the South, where English has always been ardently studied and well taught, and is obviously unfair to the West, where new conditions have given rise to new and sound methods of instruction. A third point is also worth mentioning. Among the prescribed books are several by American authors, which, though legally out of copyright, are still clung to so tenaciously by the extravagant protests of their former owners as to restrict their publication to a single firm and any educational or literary treatment of them to a single editor—an absurd situation and one obviously unfortunate for both the schools and the public. Such books should be excluded from the lists, if necessary; better still, the Conference should explicitly state its desire that no non-legal embargo should be laid on the publishing and editing of any books on its list not still under copyright.

The new and preposterous bill regarding temperance teaching in the public schools, to which we referred in June,[1] was unfortunately signed by Governor Morton and became a law. It was passed unanimously by a legislature that has rarely been equaled in its subserviency to "bosses" and political managers. No Tammany Hall representative, no saloon-keeper, either voted or spoke against it. This fact alone ought to be conclusive as to the worthlessness of the law as a check upon the saloon. On the other hand its evil effects upon the schools and upon the cause of rational temperance itself were pointed out by State Superintendent Skinner and his associates, by the members of the Board of Regents, by such college presidents as Low of Columbia and Taylor of Vassar, by

[1] X : 103.

the heads of the normal schools, by the boards of education of New York and Brooklyn, and by lifelong temperance advocates like Bishop Doane of Albany and Dr. W. R. Huntington of New York. But all this opposition availed nothing against the plea of the Republican politicians from the rural districts that "it was time the party did something for the temperance vote." This silly and shallow plea finally made a law out of a bill that was conceived in fanaticism and passed in hypocrisy. Judged politically even, it is a colossal blunder, but judged from the standpoint of the schools it is a crime. At the University Convocation in June it was vigorously denounced by Chancellor Upson, and strong resolutions condemning it were introduced by Vice Chancellor Doane and enthusiastically carried. The State Teachers Association went even further and declared unremitting war upon the obnoxious measure in these strong resolutions, which were unanimously adopted.

Whereas, The Legislature has placed upon the statute books a new law concerning the teaching of physiology, a law contrary to all principles of correct teaching, opposed to all school laws and customs, interfering, as it does, with the courses of study and with the details of school work; therefore,

RESOLVED, That the New York State teachers denounce that law as an insult to the teachers of the State, and a menace to the principles of free school teaching.

That a committee of fifteen be appointed by the president of this association, of which he shall be chairman, representing the following departments of school work: The college professors, the normal-school teachers, the Regents of the University of New York, the academic and grammar-school principals, the School Commissioners, the city and village superintendents and institute instructors, the duty of which committee shall be to organize and make all honorable efforts for the repeal of this vicious and obnoxious law.

That, as the provisions of this law call for the perfunctory teaching of the subject for ten weeks of the school year, we advise all teachers and trustees to follow the plan of teaching physiology heretofore pursued until the next Legislature shall have an opportunity to repeal the present law.

That we advise the teachers and trustees, while awaiting the result of the efforts for repeal, to purchase no new text-books on physiology; and if such purchase becomes necessary at the beginning of the last ten weeks of the school session, we advise the purchase of those books only on which no royalty is paid for certain so-called indorsements.

The Legislature of New York passed another law, however, which, before the National Educational Association, Colonel Parker pronounced the most important and beneficent piece

of legislation enacted by any State since the first State Normal School was established at Lexington, Mass. This law authorizes any city or village, employing a superintendent of schools, to establish and maintain a training school for teachers, and provides that the State shall contribute to the support of such school "one dollar for each week of instruction of each pupil." This provision would not in itself be so important, were it not for the clause which follows. This clause requires that, after January 1, 1895, all teachers appointed to primary or grammar grades, either shall have had successful experience in teaching for a period of not less than three years, or shall have graduated both from a high school and from a school for professional training. This requirement is so far-reaching and of so striking a character that it is presented in full:

> After January first, eighteen hundred and ninety-seven, no person shall be employed or licensed to teach in the primary and grammar schools of any city authorized by law to employ a superintendent of schools, who has not had successful experience in teaching for at least three years, or, in lieu thereof, has not completed a three years' course in, and graduated from a high school or academy having a course of study of not less than three years, approved by the State superintendent of public instruction, or from some institution of learning of equal or higher rank, approved by the same authority, and who, subsequently to such graduation, has not graduated from a school or class for the professional training of teachers, having a course of study of not less than thirty-eight weeks, approved by the State superintendent of public instruction. Nothing in this act shall be construed to restrict any board of education of any city from requiring such additional qualifications of teachers as said board may determine; nor shall the provisions of this act preclude the board of education of any city or village from accepting the diploma of any State normal and training school of the State of New York, or a State certificate obtained on examination, as an equivalent for the preparation in scholarship and professional training herein required.

This law does not merely provide that the teachers employed in the cities and villages of New York shall have at least a high-school education and a course in professional training; it does something more. It requires that the schools in which this high-school education and this course in professional training are obtained, shall have the approval of the State superintendent of public instruction. The duty of approving or disapproving high-school work and of approving or disapproving the professional training of teachers, lays upon the State superintendent an enormous responsibility and opens

before him a great opportunity. If he is wise and firm in the performance of this duty, he can, with this power in his hands, make every high school in the State an efficient high school and every training school an efficient training school. No community maintaining a high school or a training school can afford to allow its schools to remain without the State superintendent's sanction, because without that sanction the graduates of its institutions are debarred from the teaching profession. If a school is weak in any particular, therefore, the State superintendent has only to withhold his approval until the weakness is remedied. The logic of the situation will thus compel the local authorities to make all necessary improvements. Will the present State superintendent of New York prove himself worthy of this vast power and this great opportunity? Those who know him best have not the slightest doubt that he will.

It behooves the friends of progress in the Empire State to have a watchful eye that the beneficent legislation which she has thus enacted shall not be repealed through the sinister efforts of those who would use the school system for political purposes. The opposition to the passage of the law was long and stubborn. It was brought forward seven years ago by the State council of superintendents, and to the persistence of that body and its committee on legislation is due the credit of its ultimate triumph. Twice before it was passed by the Legislature. On one of these occasions it was permitted to die by Governor Hill under circumstances that reflect greater credit on his powers of intrigue than on his honesty of purpose. On the other occasion it was vetoed by Governor Flower. In 1895 it was again passed by the Legislature and approved by Governor Morton, who, for so doing, deserves and has received the thanks of the teaching profession as represented by the National Educational Association. The very fact, however, that it has required exertions so strenuous and so long continued to secure the adoption of a beneficent measure, points to unceasing vigilance as the only means through which the law will retain its place on the statute book.

Nor should the friends of education in New York rest content with taking and maintaining this step, which places her in advance of all her sister commonwealths in educational legislation. Similar legislation should, as soon as possible, be

enacted for the rural schools, and a law should be passed requiring that no one should be permitted to teach in a high school who had not graduated from a college of acknowledged standing and from a course of professional training specially adapted to secondary school work.

The success of the educational congresses and exhibits in connection with the great Cotton States and International Exposition at Atlanta, this autumn, is already assured. Ex-Governor Northen, who is the chief of the department of education, addressed the National Educational Association at Denver on the subject and aroused great interest in the project. As a result a strong representative committee of seventeen, with President Dougherty at its head, was appointed to represent the N. E. A. at Atlanta. Commissioner Harris, President Gilman, and others are actively co-operating with the Exposition management, and the result will be a programme to arrest the attention of the entire country. All who can should arrange to take part in this great demonstration, at the capital of the New South, of the educational progress and influence of the nation.

An Educational Press Association has been formed, having as its charter members the following journals:

American Teacher, Boston, Mass.; Colorado School Journal, Denver, Colo.; EDUCATIONAL REVIEW, New York, N. Y.; Education, Boston, Mass.; Iowa Normal Monthly, Dubuque, Iowa; Intelligence, Oak Park, Ill.; Michigan Moderator, Lansing, Mich.; New York School Journal, New York, N. Y.; New England Journal of Education, Boston, Mass.; Northwestern Journal of Education, Lincoln, Neb.; Ohio Educational Monthly, Columbus, O.; Primary Education, Boston, Mass.; Popular Educator, Boston, Mass.; Public School Journal, Bloomington, Ill.; Primary School, New York, N. Y.; Pennsylvania School Journal, Lancaster, Pa.; School Review, Hamilton, N. Y.; School Bulletin, Syracuse, N. Y.; School Board Journal, Milwaukee, Wis.; School Education, Minneapolis, Minn.; Teachers Institute, New York, N. Y.; Texas School Journal, Dallas, Texas; Western School Journal, Topeka, Kansas.

Other journals may be admitted by vote of a committee on membership, whose names are not to be known outside of the Association. It is provided that journals admitted to membership must contain original contributions, must have a recognized standing as valuable promoters of education, and have been in existence at least three years. A constitution and

formal organization will probably be adopted during the session of the Department of Superintendence at Jacksonville, Fla., in February, 1896.

Dr. Harris is kind enough to permit the publication of the following passage from a private letter written to him by Rudolf Eucken, professor of philosophy at the University of Jena:

"After having read with vivid interest the report of the Committee of Fifteen, and especially your part of that document, I feel impelled to express my gratitude to you personally, and send my deep-felt sympathy.

"My position with reference to the questions at issue is quite similar to yours, and especially do I share yonr view of Herbart; according to which he may doubtless be regarded a great pedagogue, but not a leader in philosophy. This is the conviction of most learned men in Germany. Herbart's metaphysics scarcely find a disciple among the younger generation. However, among teachers his pedagogy, owing to its systematic structure and careful elaboration, justly finds many disciples, but alas! these disciples are very apt to fall into the danger of adopting his dry and unspiritual view of the world, owing to the usefulness of his pedagogy. A good part of the strength of Herbartian pedagogy rests upon the fact that no other well elaborated system is placed in opposition to it.

"JENA, May 7, 1895."

In *Revue Pedagogique* for July, M. Gabriel Compayré publishes a long and very eulogistic analysis of the Report of the Committee of Fifteen.

It is a pleasure to call attention again to the excellence of the *Cook County Normal School Envelope*. Any superintendent or principal can secure for his teachers the personal help of Colonel Parker and his remarkable faculty by causing them to procure and study the *Envelope*. It deals with actual lesson-material, and represents the highest form of co-operative educational work.

The official edition of the Report of the Committee of Fifteen was issued in June by the American Book Company, acting as agents for the National Educational Association. It makes a handsome volume of nearly 250 pages, and is uniform in style with the Report of the Committee of Ten. The official edition alone contains the chairman's introduction and the large selection made from the numerous opinions furnished to the committee in response to their questions. The price is 30 cents, postpaid.

Dr. George P. Brown of Bloomington, Ill.—than whom no one is more competent—has issued an annotated edition of Dr. Harris's report on the correlation of studies. His scholarly notes greatly increase the value of the report as a subject for study and discussion by teachers in clubs and meetings. The price is only 20 cents a copy.

The Illinois Society for Child-study is the most competent body yet organized to deal with that subject. Of its admirable *Handbook* two numbers have been issued. They may be had from the secretary, Professor C. C. Van Liew, Normal, Ill.

The new School of Pedagogy of the University of Buffalo will open on September 23. Principal F. M. McMurry has every reason to feel proud of the consummation of his plans, and Buffalo will soon take rank as the most active educational center between New York and Chicago.

The geography of Colorado is certain to be well taught in thousands of schools this winter. By securing and studying the contents of the *Northwestern Journal of Education* for July, teachers may also fit themselves to deal adequately with the adjoining State of Nebraska. The editor secured for that issue an admirably written series of papers on Nebraska's resources.

Of the five executive officers of the N. E. A. for 1895–96, three are city superintendents, one is president of a State normal school, and one is a college professor. The Board of Directors is probably the strongest ever elected. It includes the State superintendents of New York, Missouri, Maryland, and Arkansas; four college presidents—De Garmo of Swarthmore, Fulton of Mississippi, Gault of Idaho, and Raub of Delaware; such normal-school men as Cook of Illinois, Pritchett of Texas, and Rounds of New Hampshire; a splendid representation of city superintendents, among whom are Gilbert of St. Paul, Goss of Indianapolis, Cooper of Des Moines, Ashmore of Savannah, Tarbell of Providence, Glass of Lynchburg, McGinniss of Owensboro, Van Sickle of Denver, and Ralston of Asbury Park; together with such thoroughgoing representatives of secondary and higher education as Huling of Massachusetts and Barnes of California. MacDonald of Kansas represents the editors.